AMERICAN GAS ASSOCIATION MONTHLY

Vol. VIII No. 5

MAY, 1926

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A. G. A. Cooperation Leads

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AMERICAN GAS ASSOCIATION MONTHLY

342 MADISON AVENUE, NEW YORK, N. Y.

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Our Own Who's Who

XII

Robert Meredith Searle

ROBERT MEREDITH SEARLE, President of the Rochester Gas and Electric Corporation, was born in Peekskill, Westchester County, New York, March 3, 1869. From office boy with Thomas A. Edison, one of his first real jobs, Mr. Searle went to the United Gas Improvement Company, of Philadelphia, where he was employed as boiler fireman and gas maker, and had direct charge of a number of plants as Superintendent and Engineer. Next, he went to the Consolidated Gas Company, of New York, as foreman of the then large works at Forty-fourth Street and North River. He subsequently returned to the United Gas Improvement Company as Superintendent of different plants, after which he entered the employ of the Westchester Lighting Company, Mount Vernon, as Gas Engineer.

In 1906, the Andrews-Vanderbilt Syndicate appointed him General Manager of the Rochester Railway and Light Company, the former name of the present Rochester Gas and Electric Corporation. From this position, Mr. Searle has steadily advanced, through the office of Vice President to that of President.

AMERICAN GAS ASSOCIATION MONTHLY

Vol. VIII MAY, 1926 No. 5

Annual Convention to be Held on Million Dollar Pier at Atlantic City

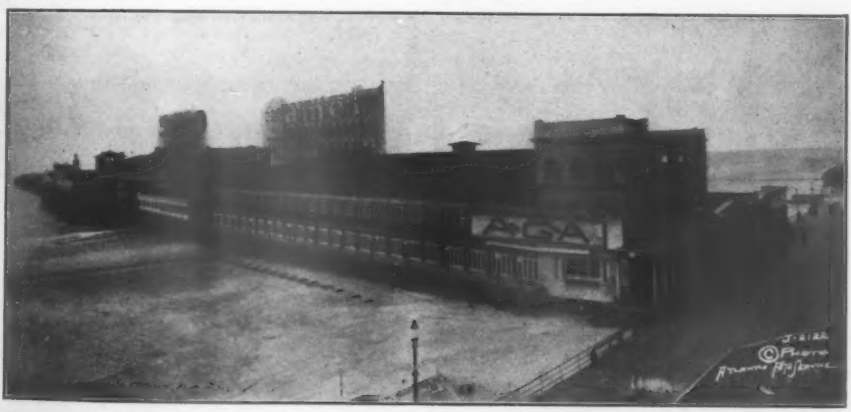
Fifty Per Cent Increase in Space Presages Record Breaking Exhibition

ATLANTIC CITY'S Million Dollar Pier will be the scene of the Eighth Annual Convention and Exhibition of the American Gas Association, to be held October 11 to 15, 1926.

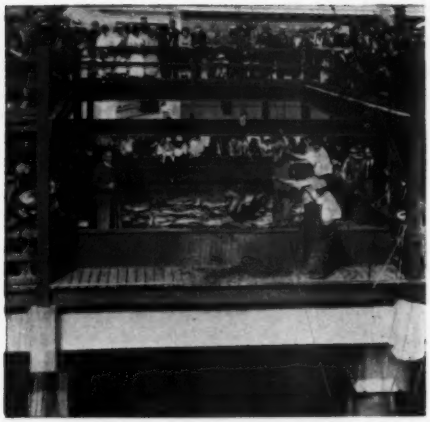
When announcement was first made of the selection of the Million Dollar Pier, it was not only favorably received by the industry at large but plans were put into operation immediately by the Exhibition Committee of the Manufacturer's Section to put on a "style show" of equipment and machinery that will outclass anything of the kind ever attempted before.

For the first time in years, the gas industry has at its disposal in the Million Dollar Pier ample facilities with which to take care of every reasonable demand for space for exhibition purposes, together with commodious meeting rooms and other conveniences which go to make a successful convention.

Famed for the excellence of its appointments, and nationally known for its fish hauls, the Million Dollar Pier has accommodated some of the world's largest conventions. It is 1750 feet long, has the largest dance floor of any pier in Atlantic City, and is centrally located in the heart



The Million Dollar Pier, Scene of the Eighth Annual Convention, Will Provide a Fifty Per Cent Increase in Space over Last Year.



The Fish Haul—a Daily Feature at the Million Dollar Pier.

of the ocean front hotel district on the four-mile-long boardwalk.

Ever since the Association held its first convention at the Hotel Pennsylvania, in New York City, the problem of providing sufficient exhibition space has become more serious each year. Not only have the number of exhibits increased from year to year but the demand for larger space for individual exhibits has grown correspondingly. At last year's convention at Atlantic City the Association approached and even went beyond a so-called "saturation point" so far as space was concerned. It became evident, after that meeting, that larger quarters had to be obtained for this year's gathering. The selection of the Million Dollar Pier seems to offer a solution to every problem that has beset the Exhibition Committee in past years, and, in addition, will enable the other departments of the Association to make more elaborate plans for their meetings and other functions.

For example, the space available for exhibition purposes permits of an increase of fifty per cent over last year. Everything on the pier is under permanent cover, and entrance and exit from auditoriums where meetings will be held, notably those to be devoted to General Sessions and to the Commercial Section, will be through the exhibition halls.

Opportunities for giving the gas man a good time while he is at the resort are unsurpassed in the Million Dollar Pier. The main ball room is directly off the boardwalk. It can accommodate with ease a crowd of the proportions attracted to a gas convention, and offers other conveniences not to be had elsewhere. Recently the pier was redecorated throughout, including new lighting equipment for the ball room.

Advisory Committee For Engineering Course

PRESIDENT S. W. Stratton of the Massachusetts Institute of Technology has appointed the following as a committee from the Industry to advise on the new course in Gas and Fuel Engineering established this year at the Massachusetts Institute of Technology:

W. R. Addicks, Vice Pres., Consolidated Gas Company of N. Y.
A. M. Barnes, Pres., Cambridge Gas Light Co., Cambridge, Mass.
Walter Barnum, Pres., Pacific Coast Coal Co.
D. D. Barnum, Pres., Boston Consolidated Gas Co.
H. L. Doherty, Pres., H. L. Doherty & Co.
F. A. Howard, Vice Pres., Standard Development Co.
J. B. Klumpp, Vice Pres., United Gas Improvement Co.
F. R. Lowe, Editor of "Power", McGraw Hill Book Co.
R. M. Searle, Pres., Rochester Gas and Electric Corp.
W. E. Steinwedell, Sec., Gas Machinery Co.
T. R. Weymouth, Pres., Iroquois Gas Company.

Telling the World about Industrial Gas Should not Be Influenced by the Mere Matter of Sundown. This Floodlighting Is Done by The Peoples Gas Light and Coke Company.

The Frontiers of Industry

Price Paid for Failure to Recognize Value of Research, and Basis It Should Be Placed On

By EARL P. STEVENSON,
Vice-President and Director of Research, Arthur D. Little, Inc., Cambridge, Mass.

Editor's Note

BECAUSE of the interest that the gas industry is taking in research work, this article by Mr. Stevenson is especially timely. He discusses the subject from an angle that is a brand new one in every respect.

The article is an abstract of a speech delivered before the American Association for the Advancement of Science at Kansas City. It is reprinted from "The Scientific Monthly."

WE are indebted to many scholars of antiquity for bits of wisdom which, in their modern acceptance, can claim the quality of truth. There is the story of the emperor who called a conclave of scholars for the purpose of reducing the wisdom of the ages to a four-word summary, and on this present occasion the four-word report of that ancient convention is worthy of attention: "This too will change."

So long as industry deals with matter in the aggregate, considers the atom as an abstraction and the electron remains on the border-line of metaphysics, the opportunity for effecting fundamental changes in industrial processes should not be qualified. The field for useful inventions in the arts is kept fertile by new scientific discoveries, and never more so than today, with the quickening rewards of continued attack on the very substance of matter. The atom, as Dr. W. A. Whitney recently stated, presents a challenge for further study. "Thus far the more we have sought to understand them, the more we have gained in appreciation of an unexplored, unlimited territory of interest and service."

What new opportunities for achievement lie beyond the present frontiers of our scientific knowledge should not, however, be our only concern. The frontiers of science are further flung than those of industry; we must accept this fact and quicken our pace lest we pay further and greater tribute to those nations whose people have come to realize the great industrial opportunity that awaits a fuller appreciation of data already before us. We have passed through a period of epoch-making discoveries; if we are to more completely realize upon their potentialities our recourse is intensive research, wisely directed, adequately financed and sustained in the face of obstacles. To better cope with this situation, more energy should be concentrated on the frontiers of our industries.

Organized research does not depend upon individual genius; it is a group activity, as distinct a business activity as selling merchandise; it is as capable of organization and direction; so-called business methods are equally productive in its administration. Supermen are not required. While the individual may indulge the vagaries of his imagination, the realization is unavoidable that the immediate opportunity today is of a different kind than when Charles Watt in 1851 covered within the brief disclosure of a single patent specification the principles and practise of our present-day electrochemical industry. There are few such manuscripts as Watts' patent, British No. 13,755, for explicitness and inclusiveness. Consider the four brief claims:

Firstly, the mode of decomposition by the agency of electricity saline or other substances in solution by means of a vessel divided into two or more compartments separated from each other by partitions of porous material.

Secondly, the mode of preparing or

obtaining the metals of the alkalies and alkaline earths by the action of electricity and heat.

Thirdly, the mode or modes of converting chlorides of potassium and sodium and the metallic base of the alkaline earths into hypochlorides, and chlorates of the alkalies and alkaline earths.

And fourthly, the separation of metals from each other by the agency of electricity and by means of vessels divided into compartments separated from each other by porous partitions and at the same time freeing such metals from other impurities.

Few are endowed with such genius as his for revealing new planets in our industrial system, but as the demand today is for intensive development, the tasks are of all orders, and many can qualify.

Possibly we are too much concerned with the evolution of industries, in effecting minor improvements in old processes, and under-emphasize in our research programs the opportunities for revolutionizing our practice of these processes. Living in the midst of abundant natural resources, we are not as responsive and sensitive to the significance of certain scientific observations in affording the suggestion of a new process as certain less endowed nations. We have so far been content, for example, in the exploitation of our petroleum reserves, with their utilization as fuel and lubricants; while the possibility of producing therefrom edible fats and oils, or developing a wide range of by-products, which affords a promise on a par with the coal-tar industry of twenty-five years ago, has not actively interested us. But this situation will change, is changing, in fact. We are coming to appreciate more the need for intensive research.

At this stage of our industrial development, a major advance in any field comprehends many collateral lines of work, often in superficially unrelated fields. Consider the instance of the new lacquer finishes which, within the past two years, have awakened the varnish industry from the feeling of security born of years of prosperity in the practice of processes inherited from the third century. To provide the automobile manufacturer with this new finish, the chemists can now obtain the necessary nitric acid through the fixation of atmospheric nitrogen; the cotton gin supplies the cellulose from the previously wasted linters; from coal and minerals come the colors; and, lastly, the essential ester solvents can be derived from petroleum. To this end the chemist has successfully exercised his art upon the entire known cross-section of the earth. This is but one example of the productiveness of systematic research.

Research, which gave to Germany her prewar monopoly of dyestuffs and to which she looks for her economic rehabilitation, is too often viewed apart as an ultra, rather than an intra, activity. The needs of research for financial support deserve recognition more on a par with the other agencies and divisions which comprise the machinery of production and distribution. In the face of millions for advertising products by slogans in the absence of distinctiveness in quality or utility which research alone could provide, research expenses are too frequently listed by the accountant among miscellaneous and sundries.

We have already paid the price of our failure to recognize in full the earning power of research. But a very few years ago, the American rights under the viscose patent for artificial silk went begging in this country for fifty thousand dollars, and last year witnessed the production in this country of thirty-six million pounds, valued at eighty-one million dollars, by a foreign-owned corporation that had the vision and faith necessary to finance this project through its development stages.

However parsimonious we may be in supporting fundamental industrial research, millions flow freely into the design of new and improved machinery for the operation of old processes. A million-

dollar expenditure on a new machine for forming sheet glass is considered quite in order, but glass is still brittle and easily shattered. A decrease in the insurance rates on plate glass is considered highly improbable, because the name glass connotes liability, and we continue to pave our driveways with broken milk bottles because our milkman has not been sold to the idea that research could give him a tougher and less easily broken bottle.

While I could not justify the expense of a research directed toward a reversion in our preconceived ideas of glass, as there are more likely subjects in closer range of our present knowledge, a silk purse has, nevertheless, been made from a sow's ear. We may not always be dependent upon the fusible silicates for a transparent material. In fact, even now we hear from abroad of an organic glass, possessing remarkable properties, among which is the ready transmission of ultraviolet light. Its discovery was not an accident, but the culmination of years of work lacking in such tangible evidence of progress as might justify its continued support.

Examples without end could be cited where money has been liberally spent on machine design. A hundred thousand dollars to make a paper lard bucket in an automatic machine for your butcher's edification shows laudable enterprise. The idea can be sold and kept sold. The savings over one machine operation in contrast with three formerly used is tangible, and as the design progresses there is tangible evidence of progress. First comes a series of blue prints and pencil sketches—week by week gears are added and subtracted and new mechanical movements introduced—then comes in all probability a small wooden model that can be cranked by hand—later we have the assembly of a full-sized model that doesn't perform, but never mind, the gears clank and it looks interesting. In the meantime, our more imaginative competitor has conceived an entirely new type of lard and ice-cream pail—a paper can, so our one hundred thousand dollar machine is idle most of the time.

A way should be found to place research, which aims to better utilize energy and materials for our daily use and is more concerned with primary processes, on a more even competitive basis for financial support with those projects which promise a more immediate return by effecting labor savings and larger scale operations in standard processes. This cause is undoubtedly advanced by such publicity as has been given the much-heralded new German process for making methanol from blue water gas. As the wood distillation industry in this country faces the possibility of losing its investment, which has been estimated at one hundred million dollars, it at last sees the handwrting on the wall. A few years ago, it is reported, an expenditure of eight thousand dollars a year for research was vetoed by the directors of one of these concerns in this country. The action, from one angle, was a proper one. The sum was entirely inadequate; but a request for fifty thousand dollars a year would never have had a hearing. The scheme would have been branded visionary at the directors' meeting, and the perusal of the current balance sheet would have continued, with much discussion of accounts receivable, for the auditor is a member in full and regular standing at these directors' meetings.

For reasons which I shall not attempt to further expound, the idea which is here entertained has found a more fertile field abroad. Our processes are too generally imported. The list is a long one, including the byproduct coking of coal, which in 1924 recovered values to the amount of one hundred and four million dollars formerly wasted by our beehive ovens; the flotation of ores not amenable to economic treatment by our purely mechanical processes; the fixation of atmospheric nitrogen; the viscose process for artificial silk; the basic syntheses for dye manufacture; both the Bessemer and the open hearth processes of the iron and steel industry; the sulfate process for pulping wood; and too many more.

Few of these fundamental processes of industries were without a substantial

prior art in advance of their commercialization. For example, the reaction between hydrogen and carbon monoxide which is employed in the new process for the synthesis of methyl alcohol was first noted by Solvay and Slense in 1898. Here was a recorded fact, but its commercial significance was not immediately apparent, and required years of research for its development. The Badische Company report 1914 as the starting date of its development of this process, which did not culminate in the installation of a commercial unit until 1924.

While numerous examples paralleling the instance of synthetic methyl alcohol could be cited, they would only serve to emphasize the apparent fact of the indebtedness of present-day industrial research to the past. Our concern should be rather to scan these volumes of scientific observations for suggestions of significance to the solution of current problems. The records of organic chemistry are rich in these suggestions, but I will limit myself to the mention of only two.

The gas companies of this country, with their aggregated investment in excess of a billion and a half, consume annually in the neighborhood of fifty million gallons of gas oil for the enrichment of blue water gas. This is a major cost amounting on an average to fifteen cents per millimeter with gas oil at five cents a gallon; moreover, the industry is concerned over its supply for the future. This problem of carburetting blue water gas is of recognized national importance. Among the interesting possibilities is the long recorded reaction between carbon monoxide and hydrogen, both constituents of blue water gas, to produce methane, an ideal enrichment gas.

Then we should be interested in the production of synthetic rubber as consumers of more than six hundred million pounds, or 70 per cent of the world's production, all imported and exacting an annual tribute close to a half billion dollars. Synthetic rubber is more than a dream, for it has been not only realized in the laboratory, but during the war was produced in large quantities in Germany. It can be made from a certain class of hydrocarbons, known as the diolefines, through a process called polymerization. Now these diolefines are not in the radium class for scarcity. In fact, they are produced in large quantities in every petroleum refinery in this country. They are present in crude cracked naphtha, where they are unwelcome and a source of trouble to the refiner who must dispose of them, and his method is by destroying them. They are reported to form gums and generally stick up the valves of your automobile. In order to remove these bodies, the petroleum industry annually suffers a loss close to ninety million gallons of motor fuel valued at nine million dollars, and incidentally destroys diolefines equivalent to a substantial proportion of our national requirement for rubber.

Here are two typical research problems such as comprise the frontiers of our industries. Instead of a guerilla attack, involving casual work here, duplication there, and general chaos, the great opportunity of organized research, ably directed, sufficiently financed and sustained in prosecution, is evident. Such an enterprise requires imagination, courage and faith in its sponsors. It is a most attractive speculation.

Organized industrial research is a speculation which is of growing appeal to those who are endowed with the vision to comprehend its possibilities and the means to act. The creation of new industries through a research accomplishment is one phase of this appeal.

Confronting new discoveries and advances in every branch of science, the task and obligation of the worker in the field of industrial research is to make these more immediately available for service. Given the necessary financial support, he can speed up and more energy can be concentrated on our industrial frontiers.

Del Mar spoke to the point when he said, "Industrial research is accelerated experience."

The Tenney Plan for Safeguarding Health

A Service That Benefits the Company and the Employee in Many Ways

By H. P. ALLEN, Associate Editor, *Tenney Service*

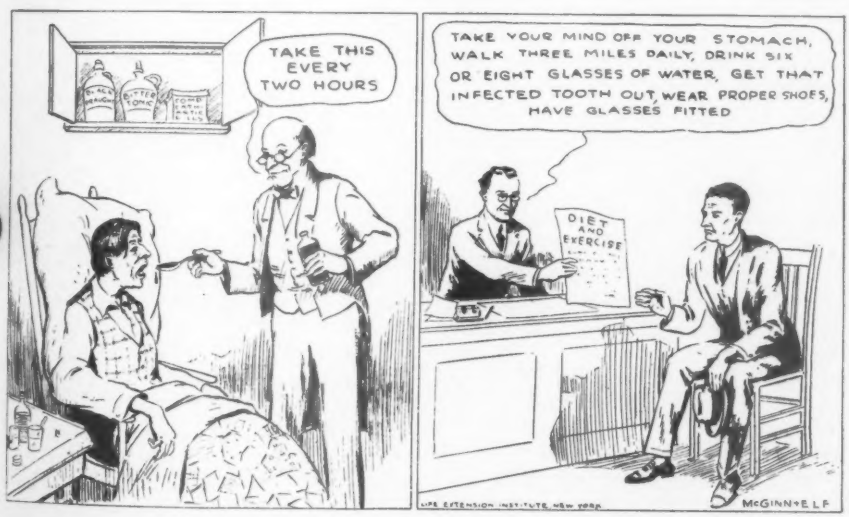
SOME years ago the officers of Charles H. Tenney & Company and its associated companies put into operation a plan whereby every employee could have a thorough physical examination once a year at no expense.

The Life Extension Institute of New York City was engaged to do this work and the results which have been obtained through their examinations have been of great help and assistance in keeping the employees of "Tenny Service" physically fit.

The Institute was organized in 1913 as a self-sustaining society to bring a thorough and adequate physical examination to the public. Life insurance companies adopted the idea and found out that a knowledge of physical condition and a review of the habits on the part of a policy holder often led to corrective measures being adopted, causing a definite lowering in mortality rates.

The examinations are conducted by a medical representative of the Institute who is trained in its preventive measures and understands its point of view. About nine employees are examined in a day. The body is carefully examined, the habits in eating, exercise, etc., are reviewed and proper advice furnished. Serious cases are tactfully considered at length and in a broad way. The examinations act as a guide post to one's health. Reading matter is given to each applicant, which, if followed, will tend to correct the faults in the body.

The tragedy in public utility companies and manufacturing plants often is found in employees sticking to the job with decreasing effectiveness caused by easily correctible defects or preventable disease. Oftentimes the defective physical condition is compensated for by increased nervous effort on the part of the employee. The best results are obtained from employees whose defective vision is corrected by glasses, or where defective hearing may be improved by the removal of wax and where the slow ad-


TAKE THIS EVERY TWO HOURS
TAKE YOUR MIND OFF YOUR STOMACH, WALK THREE MILES DAILY, DRINK SIX OR EIGHT GLASSES OF WATER, GET THAT INFECTED TOOTH OUT, WEAR PROPER SHOES, HAVE GLASSES FITTED
DIET AND EXERCISE
LIFE EXTENSION INSTITUTE, NEW YORK
McGINNIS LEE

The Life Extension Institute Believes in the Affect of Striking Posters to Further Their Work.

vance of chronic disease is detected early and stayed by preventive measures.

It is interesting to note as the doctors visit the various plants from year to year that there is improvement in the physical condition of the employees. The majority of those examined follow closely the suggestions given them by the examining doctors, and the result is a better physical employee, which means better work and consequently more opportunity for the employee to progress.

One case which recently came to light was that of an employee who had been ailing for about a year. Nothing particular seemed to be the matter, but he appeared to lose interest in his work and become careless. The doctors of the Life Extension Institute were due to visit the plant on their annual visit and he decided to take the examination. It did not take the doctor long to ascertain the cause of the general decline in health. The doctor found that three or four of this man's teeth had been capped and recommended that an X-ray be taken of his mouth. The man followed the doctor's advice and when the pictures were presented, they showed that the man's teeth were in a bad condition and were affecting his general health. Space does not permit us to enumerate other cases where we know that an employee has obtained direct benefits.

As each step in the examination is taken, the physician carefully notes down the result. This report is made out in duplicate and the original copy is sent to the Life Extension Institute in New York, where it is placed on file, and each year as the employee receives his examination, his record for the previous year is checked and the improvements noted. The duplicate copy is given to the applicant for his own reference and study. These reports are treated with strict confidence and the employer has no record of the examination. The only benefit derived by the employer from these examinations is that a physically fit employee makes for better work.

Tenney Service has always taken a great deal of interest in safety and health matters of its employees. This monthly magazine devoted to the employees contains five or six pages of safety suggestions and what the employees are doing in the matter of promoting safety and health.

In closing, we quote a few health suggestions from a recent issue of *Tenney Service*.

Your health is your most valued possession
Without good health you may be dependent on others
Good health, once lost, is difficult to win back
Therefore; take care of your health
Be sure to get fresh air—at work—at play—while you sleep.
Get plenty of sleep—don't "burn the candle at both ends"
A man on the job is worth two in the hospital
Play fair—and keep healthy.

In connection with Mr. Allen's article it is interesting to note the following editorial that appeared in the *Saturday Evening Post* March 13.

"It would seem to require no proof that the basic desire and hope in man is to continue to live. We herald with joy all the worthwhile movements to prolong life. We read eagerly and with unstinted approbation of the fight against disease. In the long warfare man loses many engagements and campaigns, but to the layman, at least, it seems that the forces arrayed against disease are gathering strength as time goes on. Such a conviction gives us all heart in the battle of life.

"One of the newer forces is the periodic health examination. There may be elderly people, with rigid notions drawn from a misty past, who see no sense in being examined when in apparent health, but their number among the more educated classes of the population must be very small by now. Shortly they will become as extinct as the dodo.

"The periodic health examination may be had from life-insurance companies, from institutions formed especially to make such examinations, from hospital clinics, from groups of associated physicians or from the family doctor. The custom is increasing with great rapidity and is viewed with the utmost favor by leaders in every walk of life.

"Far too often, however, the examiner's report is merely filed away and never acted upon. It is read carefully and solemnly and taken home to the wife. For a few days the frank outspokenness of the medical man's curt sentences leaves a little trace of gloom.

" 'You must get more exercise. You are too

(Continued on page 296)

Mr. Reed Says That Some Street Car Companies Are Enforcing Readiness-to-Serve Charges

Are We Peculiar?

The Gas Industry Should Not Be Content to Continue With Meter Rates

By C. S. REED, A. G. A. Rate Structure Committee

THE statement is sometimes made that the readiness-to-serve charge is a peculiar specialty pertaining only to the utility business. The following are illustrations of its use elsewhere than in the gas industry.

A. Municipal Government Functions:

1. Using the theory that a customer should pay only for what he gets, at so much per unit, the proper method of charging for fire protection service would be at so much per thousand gallons of water pumped or so much per hour of engine service. Thus the careful man who kept his extinguishers in order would not have to pay for the protection of his careless neighbor. Under such a scheme we might have fewer "fire sales" but it would hardly be an economical proposition.

Fire protection is charged for on the basis of the value of the property that the engines stand *ready-to-serve*.

2. If a sidewalk is put in front of a vacant piece of property, the owner pays for it, regardless of whether he uses it or not; similarly with paving.

3. If sewers are installed, the cost of them is assessed against the property owners, even if property is vacant or if the owner installs his own cesspools and sewage disposal. Part of the cost of sewage disposal is proportional to the gallons handled. The theoretically proper method of charging would be as follows:

(1) A fixed or customer cost to cover a large part of the overhead expenses of the installation.

(2) An additional fixed charge for those whose buildings require larger outlets.

(3) An output charge per gallon or per thousand cubic feet.

Practically, however, the additional cost of the meters, etc., would not be warranted and so the charge is on a direct readiness-to-serve basis, included as part of the tax assessment.

Are We Peculiar?

B. Attorneys' Fees:

An attorney may not do any work for a client in a certain month but the client often pays him a retainer fee for being in readiness-to-serve.

C. Union Labor Principles:

Unions do not approve of piece work but generally demand that men be paid by the hour or day.

If an employer contracts with an employee to start work at a certain time and then has no work for him to do until, say, three hours later, the employee is entitled to the three hours' pay. He is waiting in readiness-to-serve his employer.

D. Community Stores:

These are based on the principle of dividing the overhead charges of any business equally among the customers and then selling the commodities at cost.

E. Telephone Business:

The present method of charging of many 'phone companies is at a fixed readiness-to-serve charge per month, regardless of the number of calls. This is a delivery charge without any commodity charge.

Many telephone subscribers take advantage of the lack of a commodity charge and waste the service by "visiting" for long periods of time. This ties up not only the individual lines of the two parties but also the connections at the exchange and often a trunk line to another exchange and another set of connections.

Some telephone companies are considering the installation of a three part rate, as follows:—

1. A Customer Charge—the same to all customers; plus—2. A Demand Charge depending upon the kind of service, whether one party or four-party lines, also the number of receivers connected; plus—3. A Commodity Charge of so much per hour that the 'phone is used. Under this scheme a meter is put on each 'phone. This meter starts running when a connection is made and stops when the receiver is hung up.

If a telephone company would switch entirely to a straight meter rate of so much per call, it would probably be swamped with installation orders, for everyone would want to have a telephone handy, even if it were never used. The business users, however, would probably find the price prohibitive. A meter rate would put the telephone company out of business in a short time.

F. Street Railways:

Some street car companies are installing readiness-to-serve charges, not the $1.00 a week flat rate but a smaller charge of, say, 25 cents a week, with a reduced fare.

For example, suppose the present fare of eight cents a ride were changed to four cents, with a twenty-five cents a week delivery charge.

The man who goes to work every day for six days would pay—

$6 \times 2 \times 4$ cents	48 cents
Plus the delivery charge of	25 cents
A total of	73 cents

or about six cents a ride.

The man who rides four times a day and really uses the service would pay—

4 × 5 × 20 × 4 cents	80 cents
Plus the service charge of	25 cents
A total of	$1.05

or a fare of five cents.

On the other hand, the automobile owner who uses the car only occasionally, but who wants them to run by his house just the same and who usually is the biggest kicker about the cars being on time because he doesn't ride them often enough to be well-informed as to their schedule, finds this true:

Under the present plan this man buys tickets and gets by as cheaply as the steady user and only rides, say, four times a week.

Under the service charge plan he would pay—

4 × 4 or	16 cents
Plus his service charge	25 cents
A total of	41 cents

or ten cents a ride.

G. Taxicab Fares:

The standard taxicab fare in many

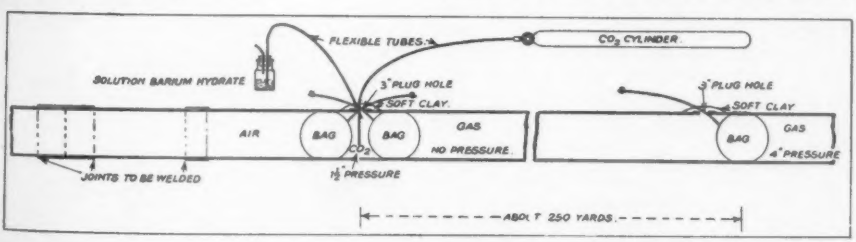
(Continued on page 308)

Gas Main Over Trent Bridge

A Novel Safety Device Worked Out in England

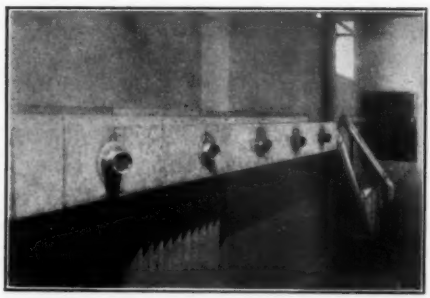
FOR some time the Burton-on-Trent Gas Department has been engaged in laying an 18-in. welded steel main over Trent Bridge. The work has been carried out in two sections. The first section of the main was laid a year ago, and has been in use for about that time, being connected up temporarily about halfway across the bridge to the original 12-in. cast iron main. Work on the second section has been progressing during the past few months as quickly as the construction of the new arches of the bridge would permit. In the final connection between the two sections the difficulty that had to be faced was to weld with safety the "live" section of the main which was full of gas, to the "dead" section, which was full of air. Any mixture of gas and air would immediately be fired by the white hot steel at the welding point, and an explosion might result. Therefore the gas had to be prevented from mixing with the air, and kept well back from the point of welding. This was accomplished by the usual method of bladdering, but as an extra precaution, William Wilson, gas engineer and manager, introduced a novel safety device, as indicated in the accompanying diagram. The space between the two bladders was filled with carbonic acid gas, to form, as it were, a plug of non-inflammable gas in the main between the air and the gas. It is believed this is the first time this extra safety device has been used. The operation of welding the final joints was carried out expeditiously and without any hitch or indication of danger.

From the "Gas World."



Illustrating the Novel Safety Device

The Ladies Must Be Served, Sir!



The Gas-Fired Hair Dryer

AFTER trying out several different types of electric hair dryers at the Green Bay Columbus Community Club swimming pool, J. T. Fakler, club engineer, became thoroughly disgusted. No type of dryer seemed to meet the requirements of the ladies; they were all too slow and the three or four dryers seemed to be invariably in use. The moisture in the shower room seemed to cut down the useful life of these dryers considerably.

Accordingly, Mr. Fakler designed a dryer with the intention of heating it with steam coils, but the Wisconsin Public Service Corporation sales department soon converted him into the idea of using gas. Mr. Fakler built up a dryer around a six section gas radiator, and with a fan produced a strong flow of hot air. The hot air was conveyed through a tapering pipe and make its exit at nine different outlets, each outlet serving as an individual dryer.

The illustration shows the several outlets along the duct.

PREACH AND PRACTICE

AT a time when the London public is most interested in smoke abatement, the leading English publications are doing much to further the movement, not only by giving publicity to the idea but also by practicing what they preach. The use of gas instead of raw fuels in the plants of the newspapers is a vital contribution to the great movement to "clean London."

The following publications printed in London now use gas exclusively in their plants: The Times, Daily Mail, Daily Mirror, Daily Telegraph, Daily Chronicle, Daily Express, Daily News, Morning Post, Punch, Daily Sketch, Evening Standard, Sunday Chronicle, Illustrated Sunday Herald, Daily Dispatch, Sporting Chronicle, and Evening Chronicle.

Gas Improves the Tone of the Phonograph

THE extreme sensitiveness of the gas flame to sound vibrations is well known, but it was not until quite recently that the idea of utilizing this for the improvement of the phonograph was investigated and applied with practical success, says the *Gas World*. The reproduction of instrumental music and of the human voice by the phonograph has always suffered from the tendency of the instrument to add a nasal or metallic twang to the tone of the music, and for many years past makers of phonographs have striven to eradicate this tendency, with varying measures of success. So far, none of them has hit upon the idea of utilizing the gas flame as a means of purifying tonal effects. That gas is capable of effecting this very desirable improvement is demonstrated by the Flamephone, a form of phonograph in which a series of small gas jets are used in conjunction with the usual sound-reproducing apparatus.

In the Flamephone, gas is introduced directly to one side of the diaphragm in the sound box, passing thence to an upright U-shaped burner attached to the same side of the sound box. The sound waves emitted by the diaphragm are transmitted to the gas, which is burned in a series of small jets on the two arms of the burner. While a record is playing the pulsation of the gas flames can be distinctly seen, thus showing that the flames are actually being used as a reproducing medium, softening and purifying the tonal quality of the music. When the gas is turned off a decided flattening of tone is observed, while the metallic effect usually associated with phonographs is considerably increased.

The Flamephone

What About the Stockholders?

It Is Important That They Receive All Vital Information About the Company in Which They Have Invested Their Money

HOW many stockholders of gas companies receive with their quarterly dividend checks pertinent and interesting information on the gas business? For those who have not taken advantage of this opportunity but who contemplate doing so, the bulletins issued by The Peoples Gas Light and Coke Company, of Chicago, serve as excellent models of their kind.

The latest bulletin, No. 18, is entitled "Spring, Clouds, and Some Dividends" and was issued April 17th with the 98th quarterly dividend of the company. On the cover of the folder—four pages—appears a view of Chicago's lake front skyline with a mammoth gas holder in the background bearing the words, "75 Years of Continuous Gas Service."

We reproduce here several items from the folder which have a very definite and practical publicity value:

COMFORT WITH GAS HEAT

More than a thousand homes in Chicago were kept warm and comfortable all winter with gas-fired central heating plants. The fortunate occupants of these homes had no coal to shovel, no ashes to remove, none of the soot, grime and dirt in the home, which is inseparable from the use of solid fuel. They gave no thought to opening or closing drafts. They could leave home at any time and stay away as long as they pleased, with absolute assurance that the home would be warm and comfortable upon their return. The temperature of their rooms was kept even at all times, no matter what sudden changes the weather outside might indulge in.

This is a matter of great health importance. Aside from the discomfort of constantly changing room temperature, sometimes too hot, and again too chilly, it has a tremendous influence on winter ills,—colds, grippe, and "flu."

GAS HEAT FOR NEW HOMES

Builders of new homes are paying much attention to the matter of insulation, which cost very little at the time of construction, and adds so much to the comfort of the home. A properly insulated home can be heated with gas, with all its many advantages, at about the same cost that an uninsulated house of the same size and type can be heated with coal.

FACTS AND FIGURES ON GAS HEAT

However, a house does not have to be insulated in order to make the cost of gas-heat reasonable, and within the means of persons with moderate incomes. We have kept careful account of the cost of heating Chicago homes of various sizes, types, and styles, and a picture of these homes, together with the monthly gas heating bills, are reproduced in a booklet, entitled, "You Can Afford to Heat With Gas." It will cost you nothing to inform yourself just what it would cost for your home, by comparison with one like it shown in the book. We will be glad to send you a copy of the book on request.

TAKES "DUST" OUT OF INDUSTRY

Some years ago when we advertised for a slogan suitable to our business, which resulted in the adoption of the phrase "You Can Do It Better With Gas", we also had several suggestions containing as their main idea that "Gas takes the 'dust' out of Industry."

While this was not considered comprehensive enough for general application, it nevertheless embodied an idea that is worth considering. Gas does take the "dust" out of industry, and dirt and dust, wherever they exist, are a handicap and a detriment and consequently an expense. A careful compilation of figures, both in this country and in Europe, have revealed the fact that the charge on the community arising from smoke, soot, and fine particles of dust and dirt is simply gigantic. The loss and waste due to this cause has become a matter of serious concern to business interests all over the world, and scientific means of checking it are being rapidly developed.

"BIG BUSINESS" BUYS GAS

Last August your gas company was able to put into effect a re-adjusted rate for consum-

ers of large quantities of gas whose demand does not conflict with existing "peak" loads. The company must have manufacturing and distribution capacity large enough to carry the heaviest demand that is made upon it at any time during the year. Obviously, when the demand is not so heavy much of this equipment is idle. Our "peak" loads come on Thanksgiving Day, Christmas Day, New Year's Day and on Sundays between November and March, and on these days labor rests.

GLANCE OVER THIS

The new rate and attendant arrangements make gas available to many of the largest Chicago industries. To what extent they have availed themselves can be seen by the following figures, which show the actual increase in consumption of these customers over the first three months of last year.

	Increase	Per Cent
January	23,721,200 cubic feet	24.3
February	42,610,000 cubic feet	38.5
March	51,828,400 cubic feet	42.7

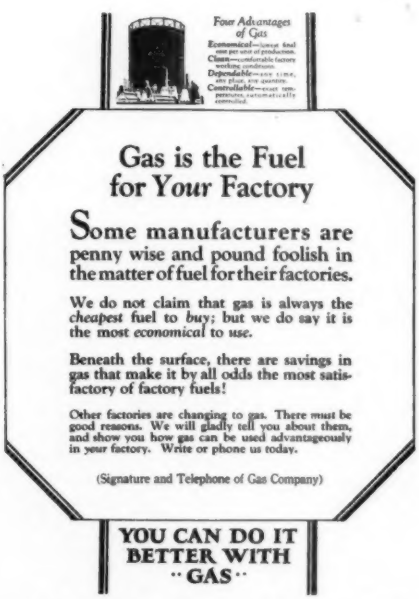
We could not begin to enumerate here the wide diversity of products in which gas plays an important part, but among the well known organizations using it in quantity are:

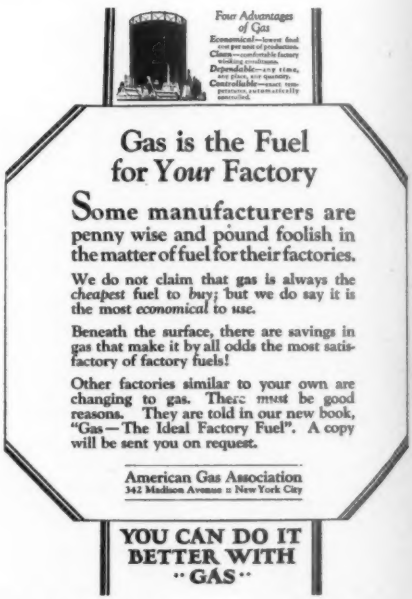
Aetna Ball Bearing Co.
Crane Company
Ford Motor Company
International Harvester Co.
Lake View Brick Company
Stewart Warner Speedometer Co.
Tousey Varnish Company
Cribben & Sexton Co.
Armour and Company
Illinois Tool Works
Kinney Rome Company
Sprague Warner Company
Stewart Manfg. Company
Washburn-Crosby Company
Yellow Cab Company

BIG SALES AHEAD

Last year strictly manufacturing customers used nearly 430,000,000 cubic feet more gas than in 1924, an increase of thirteen per cent.

The first three months of 1926 indicate that last year's gain will be exceeded this year. Wholesale customers representing more than fifty per cent of the total industrial consumption have signed contracts for five-year periods. The future of the gas business is promising.


Four Advantages of Gas
Economical—lowest final cost per unit of production.
Clean—comfortable factory working conditions.
Dependable—any time, any place, any quantity.
Controllable—exact temperature, automatically controlled.
Gas is the Fuel for Your Factory
Some manufacturers are penny wise and pound foolish in the matter of fuel for their factories.
We do not claim that gas is always the cheapest fuel to buy; but we do say it is the most economical to use.
Beneath the surface, there are savings in gas that make it by all odds the most satisfactory of factory fuels!
Other factories are changing to gas. There must be good reasons. We will gladly tell you about them, and show you how gas can be used advantageously in your factory. Write or phone us today.
(Signature and Telephone of Gas Company)
YOU CAN DO IT BETTER WITH "GAS"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We do not claim that gas is always the cheapest fuel to buy; but we do say it is the most economical to use.
Beneath the surface, there are savings in gas that make it by all odds the most satisfactory of factory fuels!
Other factories similar to your own are changing to gas. There must be good reasons. They are told in our new book, "Gas—The Ideal Factory Fuel". A copy will be sent you on request.
American Gas Association
342 Madison Avenue :: New York City
YOU CAN DO IT BETTER WITH "GAS"

The Industrial Gas Section Is Offering a Mat Service to Local Companies So That They Might Tie-in With the National Trade Paper Advertising Campaign Now Being Conducted. The June Mat Is Shown at the Left, and the June Trade Paper Advertisement Is on the Right. Orders for Mats Should Be Sent to Association Headquarters.

A. G. A. Cooperation Leads the Way

Gas Companies and Plumbers and Heating Contractors Adopt the Team-Work Principle

A GROWING spirit of cooperation between gas companies and master plumbers and heating contractors is manifest as the result of overtures that have been made by the gas industry. On January 11 the American Gas Association opened the way for negotiations that will lead to better mutual understandings. This was done by Alexander Forward, secretary-manager of the A. G. A., in an address before the annual conference of the Presidents and Secretaries of the National Association of Master Plumbers and the Heating and Piping Contractors of North America at Evansville, Ind.

One act of the convention crystallized the opinion that had been aroused. This was the unanimous adoption of a resolution requesting the national association concerned to create committees to consider acceptable plans for the promotion of this cooperation.

It is obvious that this is a movement that will result in good things for both the gas industry and the master plumbers and heating contractors. Too long have the differences, real or imaginary, between these two groups been left to haphazard treatment, leading, in some cases doubtless, to misunderstandings by both sides. The gas industry has nothing to lose by this cooperation; it has everything to gain. The same applies with equal force to the heating contractors and plumbers.

This is an age of constructive cooperation. The days of shoddy and careless business practice are as obsolete as the people who tolerated such a regime. Today the successful business is that one that accepts cooperation, in its broad sense, as a necessary and vital commercial force.

This growing spirit of cooperation between the gas companies and the local master plumbers' associations will bring the two groups together. A mutually satisfactory agreement should be arrived at in all cases, an agreement that will assume reciprocal benefits and increased business for both parties.

One state Master Plumber's Association in a key location in the Middle West has already sent out a letter to all gas companies and plumbers' associations in that state that will be the entering wedge. Other states are soon to follow, as it is inevitable that the movement will be recognized as an important one by both parties.

It is interesting to note the experiences of one gas man in his efforts to cooperate with the local plumbers. The following is an abstract of a letter that was received at Association Headquarters recently.

"I came to .... as manager of the gas company here and found that the feeling of the plumbers was hostile to the company. They sold some few gas appliances.

"A letter was written to each plumber stating that the gas company would be glad to send a man to properly adjust any appliance that they may sell. As they often included a gas water heater in estimating a contract, we gave them a

A FABLE

ONCE upon a time there were two horses. The duty of the horses was to pull a certain load a certain distance. The load was not heavy and the way was not especially difficult. The horses worked together in fine fashion, soon arriving at their destination. However, if one horse had insisted on a different road to the ultimate goal, there would have been no progress.

There may or may not be an analogy in this. There is this, however: The gas company and the master plumbers and heating and piping contractors have a common goal, that of increased gas installations. Cooperation means progress; lack of cooperation may mean ultimate defeat.

special price as well as the price we charged for the heater connected. Any gas appliance that a plumber sold which was furnished by us, we gave him a ten per cent commission and we did the installation. At the present time I think all water heaters installed by the plumbers are furnished by the gas company.

"We also made it known that we were ready to assist them in the design of any special appliance or any other problem in connection with gas or anything else for that matter. The result has been that many instances of cooperation have resulted in a great benefit to both the gas company and the plumber. Just recently a plumber obtained a large contract for the heating and plumbing of an apartment house of nine apartments. He called at my office and asked me to come to the apartment and lay out the locations of the meters and the size pipe and the arrangement. The work was done exactly as instructed.

"About six months ago, I was asked to become a member of the local Master Plumbers' Association. I accepted. My association with them has been all that could be expected.

"I have severed my connection at .... and of course resigned from the Master Plumbers. They accepted my resignation and immediately elected me an honorary member."

GAS AND RADIO

ALTHOUGH DR. LEE DEFOREST set out deliberately to solve many of the problems of radio communication, it was an accidental discovery which gave him the clue leading to the invention of the audion, or three electrode vacuum tube.

This was in 1900, when DeForest was working for five dollars a week. He was experimenting with a primitive type transmitter, a kind of spark coil, when he noted every time the transmitter key was operated, the gas light in the laboratory flickered.

The sound waves from the transmitter had caused a change in the gas and air currents within the gas mantle, forcing the gas from the hotter regions down to the less dense spots which were not quite so brilliantly lighted. This caused the distribution of the gases to be more even throughout the burner. It is a development of this phenomenon which is responsible for the action of the modern vacuum tube.

Gas Man Was Inventor of the Safety Pin

IT is rather interesting to learn that the inventor of the safety pin was a gas man, who recently died in Providence, R. I. His name is not given, but that does not especially matter, because it appears that the inventor of this very useful article never cared a great deal about fame, fortune or the rewards that sometimes go to the person who adds much to the well being of the human race.

One wonders what mothers did before the advent of the safety pin; or what unattached males could use beside a shingle nail when an important gallus button came off. Yes, the wonder grows as we contemplate the difficulties one would be in without this most practical and useful invention.

The *Boston Globe* expands to the extent of a column on the subject and among other things remarks:

"The death of the man who invented the safety pin was recently recorded in a small and insignificant item in the newspapers. No one except his neighbors knew that 49 years ago he perfected the pin in its present form. He did not seem to care. He was a contented worker at a gas company in Providence, R. I., and died in practical obscurity without wealth. Not attempting any estimation of the value of his simple invention in holding humanity's clothes together, it is, nevertheless, interesting to speculate upon this humble worker's attitude toward his device.

"Did he glow with satisfaction every time he saw a safety pin? Was he secretly bitter because fame and fortune did not come his way? All the indications are that he was not jealous of the others who reaped wealth from the sale of his contrivance. Nor was he boastful of his idea that found expression in the cleverly arranged bits of metal. It appears, in fact, that he almost forgot his youthful accomplishment, satisfied completely in the conviction that he had successfully wrestled with an idea and given it serviceable expression. So far as he was concerned, his idea was out in the world doing its work, and his mind turned to other things.

"The distinction between such an idea as took form in the safety pin and one which takes form in beautifully ordered words, in a painting, in architecture, in political institutions or in any of the multitudinous forms for expressing ideas, may seem too great to allow comparison. A safety pin seems so absurdly simple and unworthy of serious comment. Yet the principle underlying the formulation of all ideas are the same. They are wrought and fought for either from selfish or from unselfish motives. The obscure inventor of the safety pin was one of those individuals who wholly lose interest in their own personalities and success when they are consumed by ideas which they consider of value.

"For such people ideas become the very essence of life—they become more important than money, food or glory."

Have You a "Flow Sheet" for Your Kitchen?

A Few Pointers That Should Be Brought to the Housewife's Attention

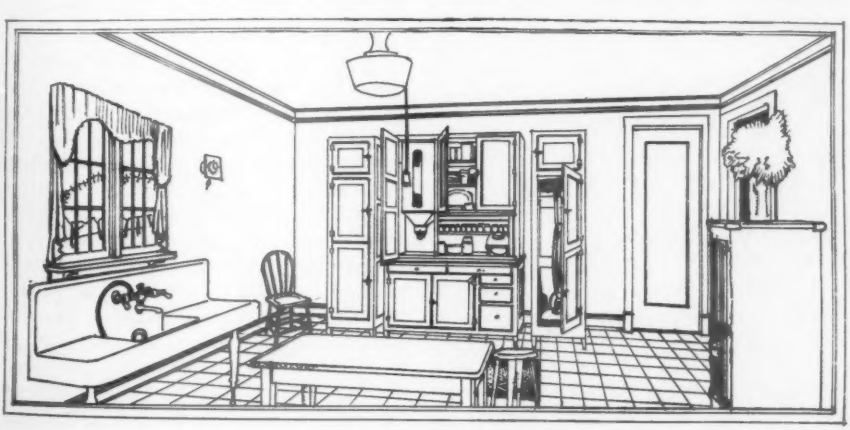
By L. E. LINDSAY, The Peoples Gas Light & Coke Co.

THE modern housewife, proud possessor of a glistening kitchen fitted with a complete array of the latest appliances, would very likely resent being told that her workshop, the birthplace of pies and pastries and everything good to eat, resembled a factory in one of its most important respects. Yet, such is indeed the case, or should be, if the kitchen is to be modern down to the last detail.

The similarity does not lie in appliances or apparatus, but in plan. In factories, raw materials, machinery, work tables—practically everything—are laid out on the same basic principle. This plan is to make the arrangement such that the work of production will flow along as smoothly as possible from beginning to end with little or no waste motion. Thus, the storage room is located where delivery trucks can most easily reach it and the entire manufacturing process follows, step by step, so that there is as little needless transporting of tools or material about the factory as possible. This efficient arrangement is obtained by following what is known as a "flow sheet," in which the arrangement of machinery and the flow of work are made to coincide.

So it should be in the modern kitchen. All the furnishings—table, kitchen cabinet, sink, refrigerator, gas range, and pantries—should be so arranged that the housewife can prepare her meals with a minimum of moving about to accomplish her work. Thus a "flow sheet" for the kitchen is as practicable as a "flow sheet" for a factory.

Its center will very likely be the indispensable kitchen table, located either at the middle or on one side of the room. From this the refrigerator, the kitchen cabinet, the sink, and the gas range should all be within easy reach. As the housewife enters the kitchen to prepare a meal, she will first go to the refrigerator to get her raw materials, then to the cabinet where they will largely be prepared for cooking. From here they will go to the kitchen table, perhaps to the sink for washing, then to the stove for cooking. From the stove they will again go to the kitchen table for serving and



Example of a Kitchen Laid out According to a Flow Sheet

garnishing, and thence to the dining room. It is easily seen, then, that any arrangement other than the most efficient, would be unendingly troublesome and increase the housewife's work in direct proportion to the poor arrangement. An excellent "flow sheet" for a modern kitchen is shown herewith and demonstrates how one ideal plan works out.

Opposite the kitchen table on one side of the room is the nucleus of the entire kitchen, the gas range, without which cooking could not be done as economically or efficiently. The selection of a range should depend on the service to be required of it. There are many types and sizes. Some of these are ordinary ranges, while others are masterpieces of design, workmanship, and appearance. One of the finest types is fully trimmed in white porcelain, which is set off by nickel fittings. It is equipped with rust-proof oven linings and an automatic lighter so that matches are done away with. An oven heat regulator, which provides a cooking temperature of scientific correctness, amounts almost to a guarantee of successful cooking, for desired temperature is maintained automatically. In addition, it saves gas. As the masterpiece costs but little more, it is really economy to buy the best as this is always an investment that pays high dividends in satisfaction as long as the article is used.

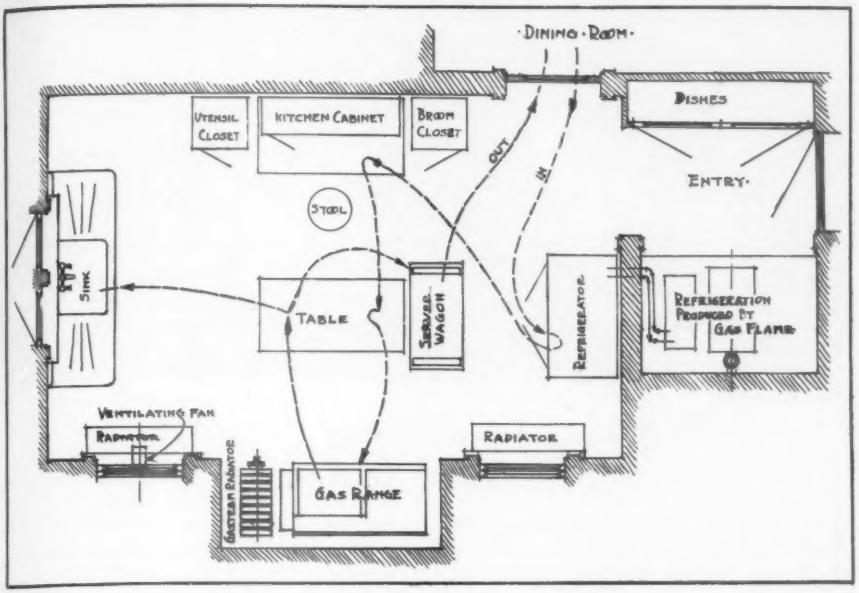
On the other side of the room is the kitchen cabinet with its revolving stool. Too much cannot be said in favor of the kitchen cabinet. It saves countless steps and provides orderly and convenient storage space for all of the kitchen staples, recipes, and many utensils. In addition to this, it adds a great deal to the kitchen in the way of appearance.

Another extremely important item is that of refrigeration. In the plan shown, the refrigerator is placed at the entrance end of the kitchen so that the delivery of meats and other perishables may be accomplished without traversing the entire kitchen with its attendant bringing in of dirt. The choice of a refrigerator may well require a good deal of thought.

In these days of modern conveniences, automatic refrigeration is making rapid strides in the favor of the public. Considering length of service, convenience and efficiency, automatic refrigeration is not at all the luxury that it may seem on first thought. Of these, the market offers several kinds, foremost among which is what is known as an absorption type in which refrigeration is accomplished by alternate expansion and contraction of liquids. It has, therefore, no moving parts to offer a possible source of trouble as other motor driven units do, and is gas-fired. The use of gas to produce ice sounds like an anomoly, but such is indeed the case.

Another conspicuous item that should be well chosen is the sink. One of the best types is a white porcelain, one-piece combination with a drain-board on each side. The top of the sink should be 36 inches above the floor in order to eliminate unnecessary back-breaking bending. An added convenience that may be had with very little extra cost is a combination swinging spout which allows the hot and cold water to be mixed as desired while still in the faucet. An extra valve carries a connection for appliances run by water for washing vegetables, rinsing dishes and spraying potted plants.

Heating the kitchen may be taken care of in several ways. One of the latest of these is a new stove known as a "unified range." It resembles the ordinary gas range but to it has been added a unit for heating the room as well as cooking the food. It is, in effect, a miniature warm-air furnace. The cold air enters from the bottom, comes in contact with the heating element, and escapes into the room at the top. This is very different from merely opening the oven door for heat, however, because in this case the products of combustion enter the room. In the unified range these products of combustion are carried up the flue just as they are in a hot-air furnace, deliver-



A Diagrammatic Presentation of the Flow Sheet Idea

ing only pure, heated air to the room. The stove may be used merely for heating whenever desired.

Another heating accessory is a gas-steam radiator. This resembles the usual type of radiator, but it is actually a complete miniature steam plant. The bottom of the radiator contains a quantity of water which is quickly turned into steam by a small gas flame at the base. In a few minutes one of these radiators will quickly convert a cold room into one of cheerful warmth.

In designing a kitchen it is well to add one or two equipment closets for brooms, vacuum cleaner, dusters, large pots and pans, and other articles. An ironing board built into the wall into which it folds out of sight is also very practical.

Lighting of the kitchen should also be settled in a thoroughly practical manner. Among the many fixtures which are particularly adapted to kitchen use is a combination light with drop cord and switch having a "hot" connection for electrical equipment. Located at the center of the ceiling such a fixture offers an excellent light. Similar "hot" connections should be located at convenient points in the baseboards around the room to serve as a source for power.

A fitting color scheme will finally complete our model kitchen. This is entirely a matter of taste, but whatever design or color is chosen should reflect cleanliness and cheerfulness. One suggestion might be to have the woodwork, such as base, doors, window sash, and trim, of flat finish fumed oak, the plaster walls in medium tone of ivory and the ceiling white. Done with zinc, lead and oil, starched and stipled with the brush, this could be washed down easily whenever desired without injury to the painted surfaces. The floor might be covered with any good grade of linoleum with a pleasing design, while the draperies to the windows might be of any washable material, possibly in a dainty shade of oriole, for the color scheme described.

It should be noted in the plan that the range and radiator are set in an alcove. This is, of course, not essential but its

(Continued on page 296)

New Haven Company Employee Tendered Banquet

ROGER C. BRUCE was honored by the officials and employees of the New Haven Gas Light Company, on April 14th, at a surprise dinner tendered by his fellow workers in the Fitting Department. The occasion was the celebration of the completion of forty years of continuous service with the company.

Mr. Bruce joined the then comparatively small staff on April 3, 1886, being appointed to duty in the meter shop. Later he became a meter reader and relief office man. Thirty-five years ago his aptitude, loyalty and interest in the company's welfare secured for him a responsible position in the Fitting Department, being placed in charge of gas meter installation work and special complaints. During ten years of his earliest years with the company, Mr. Bruce lived in a room over the company's building and then for twenty-eight years occupied a cottage in the company's fitting shop yard. His brother, James P. Bruce, foreman of the Fitting Department, has been with the company thirty-nine years and his sons, Stephen, twenty-one, and Douglas, sixteen, are also in the employ of the company. During the evening his fellow employees presented him with a radio set.

The full course dinner was prepared and served by Mrs. Frances S. Mathis of the company's Home Economics Department and her associates. It was attended by Clarence Blakeslee, president of the company, who extended the hearty congratulations and good wishes of the company and wished Mr. Bruce many more long years of active and appreciated service. J. Arnold Norcross, vice-president and general manager, and Theodore R. Sucher, secretary and treasurer, offered their felicitations on the memorable occasion. Each of these officials spoke in warm praise of Mr. Bruce's work, faithfulness and integrity.

A few days prior to the banquet the company recognized the occasion by presenting Mr. Bruce with a small bag of twenty-dollar gold pieces in recognition of his long years of service, kindly disposition and devotion to his special work. Mr. Norcross in making the presentation said:

"We cannot let this day pass without pausing in our ordinary round of duties to give thought and consideration personally to you.

"You have today completed forty years of service with this company. Forty years is a long time to serve, and when, as in your case, that service is distinguished by a steady loyalty and unfailing zeal, it is appropriate that I and all others having the work of the company at heart should stop long enough to congratulate you on the occasion."

Elimination of Phenol-Bearing Wastes in the Gas Industry

By RALPH L. BROWN, Organic Chemist, Pittsburgh Experiment Station, U. S. Bureau of Mines

(Continued from the April issue)

FRANK[26] has proposed the recovery of phenols by extraction with benzol. The still-waste is acidified with the sulfuric acid sludge from benzol washers and clarified previous to extraction. The phenols are recovered from the benzol (or trichloroethylene) either by treatment with alkali or by continuous distillation. Profitable operation (in Germany) is claimed on wastes containing 0.5 per cent phenols. The acidic character of the effluent and the loss of solvent are serious drawbacks and render doubtful, in the writer's opinion, the feasibility of the processs.

EXTRACTION OF AMMONIA LIQUOR

In the second class of processes one recent development has taken the direction of removing the phenols from the ammonia liquor by extraction before it enters the stills. Benzol is used as the extracting solvent and the phenols are removed from the benzol extract by a relatively small amount of alkali. The apparent loss of benzol, by solution and by being otherwise carried away by the ammonia liquor, is not a real one since the benzol is returned to the gas stream along with the ammonia from the ammonia stills, and it is subsequently recovered in the normal scrubbing of the gas for its light oils. Any losses to the alkali solution are too small to be of consequence. In general, the process involves little ground space, is relatively inexpensive, is effective, gives rise to no odors, and in operation is simple. It is best applicable where the gas is scrubbed for light oils, in which case the loss of solvent is eliminated, and where equipment is at hand for distilling the solvent-benzol when necessary to free it from the tar which has accumulated in it. The idea has apparently been covered abroad by the patent[27] of Posseyer, and possibly others, and the development of a process has been pushed in Germany.

In America, sufficient development has already been made by the chemists and engineers of the National Tube Co.[28] at Lorain, Ohio, as to have permitted the successful recovery of phenols from the weak liquor from 3500 to 4000 tons of coal a day during the past 1½ years. Practical development is still under way and the present plant, a description of which the writer has been granted permission to give in this paper, does not embody the full developments. For example: Experience has convinced engineers of this company that it would be advantageous to pump the weak liquor and to flow the solvent by gravity.

APPARATUS

Figure 1 is a diagrammatic sketch of the apparatus employed in the first plant. It also serves, together with the description given in the next paragraph, to illustrate the method of operation and furnishes a flow sheet. Inside the tanks, as shown, are sets of grids similar to those used in benzol scrubbers; they are made up of slats ½ inch by 2 inches deep set with the longer width vertical, from ½ to ¾ inch apart. The sets are whorled. The levels maintained both for the benzene or other extracting medium and of the weak ammonia liquor are clearly shown in the diagram.

OPERATION

The operation, as stated previously, consists in making the weak liquor and benzene or similar extracting material

[26] Gas U. Wasserfach 68, 244-5 (1925).

[27] British Patent No. 175,285, July 10, 1923 (E. Posseyer. Abwasser u. Wasserreiningungs G. mb. H. See also British Patent No. 230,705, 1925 (Stinnes).

[28] The writer is indebted to L. E. Doty, superintendent of the coke plant, his assistant Mr. Lee, and to Messrs. Collyer and Heimbach, chemical engineers, for the information on this plant and process development. Full patent protection has been applied for by Messrs. Collyer and Heimbach.

flow in counter-directions, intimate contact being originally obtained by fine dispersion or distribution, respectively, at the top and at the bottom of the tanks. The maintenance of the contact between the two liquids essential to good extraction of the phenol is assisted by the grids with which the tanks are largely filled. During the present experiments at Lorain, which are intended to lead to a reduction in the consumption of caustic to a minimum, two tanks are employed for the washing of the weak liquor and the other two are used in a similar way for the removal of the phenol from the benzene by caustic. This permits the complete consumption of the NaOH used, and it is a practice which will undoubtedly be employed in the final design, because the cost of chemicals is an important item in the total cost of operation.

The results obtained with the four scrubbing towers of the dimensions given in the diagram indicate a recovery of 94 to 96 per cent from 50,000 gallons of weak liquor per day to be possible. In the same apparatus as much as 120,000 gallons per day has been handled with a 90 per cent removal of phenols. The weak liquor treated averages from 2 to 2.2 grams per liter, with a maximum variation of 1.5 to 2.5 grams. The recovery is about 300 gallons of crude phenols per day of which from 50 to 60 per cent has been found to be phenol, C_6H_5OH, while 25 per cent are cresols, 10 per cent is water, and the remainder consists of hydrocarbons and tars. At the present time, a motor benzol fraction is being used as the scrubbing medium. The consumption of sodium hydroxide has been greatly reduced over early operation, and at the present stage of development amounts of 0.66 pound per pound of crude phenol recovered. The calculated theoretical requirement is about 0.43 pound, the difference being due to the presence of other acidic materials such as CO_2, H_2S, etc.

In connection with all figures given it should be distinctly remembered that experimental work and development on a practical scale are still going on in this plant, consequently the figures may not represent final operating figures obtainable. This plant has been in operation about 1½ years and all trouble resulting from phenol in the wastes discharged are reported to have been eliminated. In fact, the city chemists of the nearby towns along the lake (Erie) front have followed the water very carefully for tastes which develop in water when cholorinated if it contains phenol. A 20 per cent solution of sodium hydroxide is employed in the recovery of phenol from the benzene and the caustic is completely used before it is neutralized to release the phenols. This is done with sulfuric acid of 60 deg. Bé and in an agitator provided with cooling coils. The crude phenol thus freed is run off either for sale as crude phenols or for refining.

COST APPROXIMATIONS

The basic figures used in the following table of cost estimates are 4000 tons of coal carbonized, from which 100,000 gallons of weak liquor are produced and about 300 gallons of crude phenols are recovered. The remaining figures are purely limiting estimates by the writer and do not represent experience, save in the NaOH consumption.

Cost of phenol-recovery plants and operating charges.

	Maximum	Minimum
Plant	$50,000	$30,000
Depreciation at 15 per cent per year (Liberal)	7,500	4,500
Interest and overhead at 10 per cent	5,000	3,000
Labor, 1 man, 2 shifts	4,000	4,000
Benzol in use—50,000 gallons Initial cost—$10,000*		
Interest	800	800
10 per cent annual loss	1,000	1,000
Fixed charges per annum	$18,300	$13,300
Fixed charges per day	50.00	36.50
NaOH, $60 per ton (1675 lbs.)	50 25	50.25
66° Bé H_2SO_4, $14 per ton (2200 lbs.)	15.75	155.7
Power	3.00	3.00
Cost per day	$119.00	$105.50
Cost per ton of coal carbonized	3.0 cents	2.6 cts.

*For those plants that produce benzols (90 per cent and motor) this cost would be materially reduced.

A small item which does not appear above is the cost of redistilling the solvent several times a year to free it of the

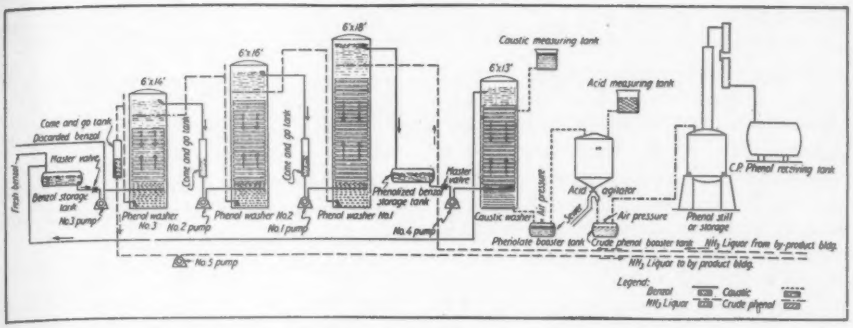


Figure 1—Diagrammatic Sketch and Flow Sheet of Plant for Purification of Ammonia Still Waste. Experimental Plant of the National Tube Company, Lorain, Ohio

tar which collects. This expense would be negligible except where the installation of special equipment is involved. On the other hand, the labor charges are liberal and the cost of the NaOH could be reduced by buying it in solution in carload lots, where the freight item does not invalidate the saving.

CREDITS

About 300 gallons of crude phenols (2500 lbs.) are being recovered at Lorain from slightly less than 4000 tons of coal carbonized daily. While the value of this can only be estimated, it should on the other hand, if separated into its constituents and marketed as pure products, have these values:

(50%)	1250 lbs. C_6H_5OH at 20 cents	=	$250
(25%)	625 lbs. cresols at 16 cents (U.S.P. 18 cents)	=	100
	Total		$350

This total is equivalent to 8.75 cents per ton of coal.

These estimates indicate that a net return of 35 per cent only of the inherent value of the constituents of the crude phenols need be realized to render the process self-supporting. Obviously, anything above that would be profit, and lesser amounts, whatever their magnitude, would serve to reduce the cost of operation proportionately. In any event, there is secured the practical elimination of phenols from the wastes from the ammonia stills, which at the present time is the primary reason for existence of the process.

Where the ammonia recovery is by a direct process, it is probable that the crude phenol will contain more cresol and phenol (at the present time only 3 cents per pound separate the quotation of phenol and cresol). Also it is certain that the total recovery of phenols per ton will be less and will follow roughly the amount of weak liquor produced.

General and large-scale recovery of phenols might materially reduce the price for pure materials. However, crude cresylic acid is currently quoted at 50 to 60 cents per gallon. The consumption is somewhat limited, but on the other hand the expansion[29] in the manufacture and use of phenol-aldehyde resins probable with larger and cheaper supplies of methanol will mean a corresponding increase in consumption in phenols.

The point to be made is that there is a good possibility of some revenue from the process which should materially reduce the cost of the removal from the still-waste, which is in itself a necessary operation.

LOSS OF BENZOL (SOLVENT)

In those plants where the NH_3 is recovered entirely as sulfate, there would be returned to the gas stream an amount of benzol approximately equivalent to the solubility of benzene in the weak liquor actually treated. This solubility is about 0.1 per cent at 35 deg. C. This solvent

[29] See, Relation of tar utilization of coal carbonization, by S. R. Church. Chem. & Met. Eng., vol. 32, p. 870 (1925).

is recovered where the gas is being scrubbed for its light oil.

Where concentrated ammonia liquor is being produced, the loss of benzene should be limited by its solubility in that liquor. Part of the remainder of that which enters the ammonia stills in solution in the weak liquor collects as a separate layer above the concentrated liquor, and part passes back into the gas stream to which the concentrated liquor receivers are vented. The gases (C_2N_2, H_2S, CO_2, NH_3, etc.) so passing will carry considerable benzene vapor back into the gas to be recovered as above. As this mixed gas will be saturated with benzene, it will contain at least 10 per cent by volume at 20 deg. C., 16 per cent by volume at 30 deg. C., and 24 per cent by volume at 40 deg. C., and mists will swell the percentage.

As the system can be made a closed one, the only other two sources of loss are in the still-waste liquor and through the caustic solution coming from the tower in which the benzol is stripped of its phenol, but both of these should be negligible.

The remaining source of possible loss is to a gas stream which is not later scrubbed for its light oil. In this case one gallon of benzene at 24 cents on a heat unit basis is equivalent to 500 B.t.u. gas at $1 per 1000 cubic feet, which approaches the average retail price of gas per B.t.u. The use of motor benzol as solvent procured at wholesale prices would reduce this cost in proportion. This would also reduce the original cost and fixed charges on the solvent continuously in use.

OTHER PLANTS

The general scheme just described is in principle also employed at the plant of the Iroquois Gas Corporation of Buffalo. Direction of the plant and its development there has been under D. W. Wilson, the chemical engineer for that company, who states in a personal communication to the writer:

> We have had the process in commercial operation for the last six months, treating all the liquor we make in this plant, and for some weeks past we have been removing 90 per cent of the phenol in the raw feed liquor. We do not have any difficulty, however, in removing 95 per cent or possibly even more with our present apparatus.

The process at that plant is likewise still undergoing development.

OTHER PROCESSES

After the completion of this review, word was received of a process invented by William Tiddy and R. W. Heffner on which a patent has been allowed but which at the time of this writing had not been issued. The process has been described in a communication to the writer as follows:

> In the early part of 1924 we stopped working on still-waste to divert our attention to treating gas liquor before or during its passage through the ammonia still. We found that when ammonia gas was passed through a heated solution of gas liquor containing phenols, ammonium phenolate was formed which was more volatile than phenol and recondensed when cooled below 98 deg. C. No doubt the change in partial pressure by the ammonia gas also assists in this removal.
>
> On this basic principle we developed a large scale equipment from which we showed that with gas liquor high in ammonia the necessary elimination can take place in the present type of ammonia still by preheating the liquor before entering and allowing the vapors to leave at a sufficiently high temperature to prevent recondensation. In cases where the ammonia content was insufficient recycling of ammonia condensate (freed from phenol by caustic soda washer) or using an additional scrubber was all that was necessary. The scrubber was used so that the partially cooled ammonia gas from the free still would be used for additional counter-current scrubbing to assist in eliminating the larger proportion of the phenols before reaching the free still.
>
> Results obtained on a laboratory scale showed the removal of 98 per cent to 99 per cent by the use of concentrated ammonia as our source of supply for this additional ammonia. Plant scale apparatus, 2000 gallons of gas liquor per hour treated, removed from 90 to 95 per cent using equipment made from material obtained on this plant, which you can readily surmise was not designed for this purpose, consequently relative capacity of units were incorrect for really effective work.

The inventors of this process enumerate as advantages, a low initial invest-

(Continued on page 302)

Some Interesting Facts About Gas Tubing

Specifications Show Just How Complicated a Length of Tubing Is

By J. H. SHRADER, Ph.D., Director of Chemistry and Food, Baltimore, Md.

JUST as the old lady said that "Pigs is Pigs," so many people seem to say that tubing is tubing, and any kind of an affair that *looks* like a tube is considered fit to use with gas.

All sorts of makeshifts are resorted to by careless householders by patching up decrepit tubing in order "to make it do." The trade is hardly to blame for furnishing the public with what they demand in gas tubing whose main objective is cheapness.

Fatalities are still occurring from the use of faulty gas tubing although the Gas Safety Ordinance has been in effect for some months. At this time, inspectors of the Health Department find that all the tubing on sale is approved, but householders have failed to destroy their old tubing which they were using in many cases before the Ordinance went into effect. The result is that during the past winter there have been eight cases of asphyxiations from the use of faulty gas tubing of which seven resulted in death. This gives a mortality for asphyxiations from gas tubing of about 88 per cent, while suicides from gas have a 64 per cent mortality, and of the total gas cases only 41 per cent mortality. Thus it is clear that when gas tubing enters into an accident the chances are overwhelming that death will result.

It is surprising how complicated a safe piece of rubber tubing really is. A realization of the specifications which a tubing must meet in order to comply with the requirements of the trade indicates how complicated after all is a simple

From "The Baltimore Health News."

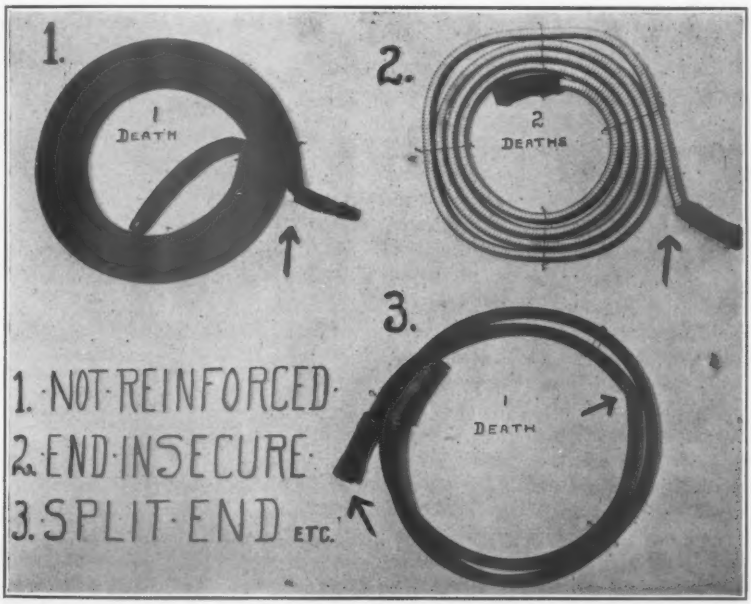


Figure 1—Several of the Kinds of Failure Which Is Attendant upon the Use of Faulty Tubing

piece of tubing. On account of the great variety of uses—and of abuses—to which gas tubing is subjected by all kinds of people, it is necessary that the tubing remain open for free flow of gas when stepped on or rocked on, or when tubing is bent or "kinked." The tubing must so firmly grip the nipple or gas cock that when someone trips over it, it will still stay in place. The alternate stresses of excessive heat and cold must not cause leak.

To meet these specifications the tubing must stand a transverse load of 75 lbs. per lineal inch, a length-wise pull of 50 lbs., the shock resulting when a five-lb. weight drops on the tubing through a height of 30 inches. It must be capable of withstanding a twisting movement acting clockwise and counter clockwise of 180 degrees per foot length and it must be flexible enough to make continuous contact with a cylindrical form three inches in diameter for 180 degrees of circumference. Temperature extremes are freezing at 125 degrees Fahrenheit in both dry and saturated air. The grip must withstand a longitudinal pull of 20 pounds. No tubing is passed which leaks more than 0.02 cubic foot per hour.

Several of the kinds of failure which is attendant upon the use of faulty tubing is illustrated in Figure 1. Each of these tubes was the occasion of one or more deaths. We have found tubing plugged with soap, wrapped with tape or rags or glued.

All of the reputable stores in town sell nothing but approved gas tubing. The high accident and mortality rate from "bootleg" tubing is eloquent of the danger which resides in unreasonable cheapness and carelessness. The seven persons who died this winter, if they thought at all, considered that the tubing they were using was "good enough," but I daresay their present opinions, if such were obtainable, would give a verdict in the interest of prevention, rather than take a chance.

THE LETTER BOX

For Employees and Employers

PRATT INSTITUTE
SCHOOL OF SCIENCE AND TECHNOLOGY
Brooklyn, N. Y., March 8, 1926

TO THE EDITOR:

As in previous years, I am taking the liberty of writing to you in reference to the employment of the current graduates from our course in Industrial Chemical Engineering. This course trains for operating positions in the various lines of chemical industry. The class graduating in June numbers forty-four men of whom some already have positions.

Before we proceed with the placement of the class of 1926, we would appreciate an opportunity to recommend a selection to meet the requirements of your company members, if they happen to have openings in prospect.

I take this occasion also to say that, should they have young men in their employ who would be benefitted by the above mentioned course, I would like to send them our Circular of Information. Industrial concerns frequently refer to us promising young men from their own organization to receive our training and then return to their employer with increased capacity for efficient service. This year we have five such students. We would be plesaed at any time to extend similar cooperation to your company members.

Yours very truly,

ALLEN ROGERS,
Supervisor of Course in
Industrial Chemical Engineering.

The New Home of the Brockton Gas Light Company, Brockton, Mass. The Building Is Heated by Gas.

Employee Magazines in the Utility Industry

A List of Publications Devoted to Creating a Closer Contact Among Those Engaged in Public Service

THE following is a list of employee magazines as published by the National Industrial Conference Board. The MONTHLY has carefully checked the list against one prepared by the National Safety Council, making every effort to eliminate possible errors and omissions. However, if the list is incorrect, it is suggested that corrected data be sent to the editor.

KEY TO PUBLICATIONS

THE first two figures following the name of the magazine (e.g.: 10¼ x 6¾) indicate the nearest approximate dimensions of the magazine. The letter following these figures indicates the frequency of publication, as follows: q, quarterly; bm, bi-monthly; m, monthly; sm, semi-monthly; bwk, bi-weekly; wk, weekly; irreg., irregularly. The final figure indicates the number of pages.

Adirondack Power and Light Corporation, Amsterdam, N. Y.: "Synchronizer," 10¼" x 6¾"-m-26.

Alabama Power Company, Birmingham, Ala.: "Powergrams," 10½" x 7½"-m-40.

Arkansas Light and Power Company, Pine Bluff, Ark.: "The Exciter."

Associated Gas and Electric Companies, Ithaca, N. Y.: "The Midnight Sun," 9" x 6"-m-20.

Baltimore Consolidated Gas Electric Light and Power Company, Baltimore, Md.: "The Baltimore Gas and Electric News," 9¼" x 6⅛"-m-32.

Blackstone Valley Gas and Electric Company, Pawtucket, R. I.: "The Utilitarian," 9" x 6"-m-24.

Brooklyn Borough Gas Company, Brooklyn, N. Y.: "This and That in Gasland," 8¼" x 5½"-m-8.

Byllesby, H. M., and Company, New York, N. Y.: "Monthly News," 11" x 8¼"-m-8.

Central Hudson Gas and Electric Company, Poughkeepsie, N. Y.: "Central Hudson Bulletin," 11¼" x 8"-m-16.

Central Illinois Public Service Company, Springfield, Ill.: "Cipsco News," 10½" x 7½"-m-20.

Columbia Gas and Electric Company, New York, N. Y.: "Hail Columbia," 9¾" x 6¾"-m-36.

Commonwealth Edison Company, Chicago, Ill.: "The Edison Round Table," 10¾" x 8⅛"-sm-12

Consolidated Gas Company, New York, N. Y.: "To Serve New York," 10" x 6¾"-m-12.

Consumers Power Company, Jackson, Mich.: "AuSable News," 10" x 6¾"-m-32.

Detroit City Gas Company, Detroit, Mich.: "The Gasette," 8" x 7"-bm-4.

Doherty, Henry L., and Company, New York, N. Y.: "The Doherty News," 15" x 10⅛"-sm-12.

Elmira Water Light and Railroad Company, Elmira, N. Y.: "Water-Light Beacon," 9" x 6"-m-24.

Empire Gas and Electric Company, Geneva, N. Y.: "Empire News," 10" x 6¾"-m-20.

Empire Gas and Fuel Company, Bartlesville, Okla.: "The Empire."

Fall River Gas Works Company, Fall River, Mass.: "The Blue Flame," 9¼" x 6"-m-8.

General Engineering and Management Corporation, New York, N. Y.: "The General Engineering News," 9¼" x 6"-m-40.

Georgia Railroad and Power Company, Atlanta, Ga.: "Snap Shots," 15½" x 10¾"-m-8.

Hartford Electric Light Company, Hartford, Conn.: "Illuminator," 9⅛" x 6"-m-24.

Illinois Northern Utilities Company, Dixon, Ill.: "Illinois Northern Utilities News," 11" x 8½"-m-8.

Illinois Power and Light Corporation, Chicago, Ill.: "Current Topics," 11⅛" x 8⅜"-m-32.

Kansas Gas and Electric Company, Wichita, Kan.: "Servicescope," 9" x 6¼"-m-24.

Kings County Lighting Company, Brooklyn, N. Y.: "The Holder," 11½" x 8"-m-16.

Louisville Gas and Electric Company, Louisville, Ky.: "The Synchronizer," 11" x 8½"-m-12.

Los Angeles Gas and Electric Corporation, Los Angeles, Cal.: "Overhead and Underground," 14" x 10"-sm-4.

Madison Gas and Electric Company, Madison, Wisc.: "M. G. & E. News."

Massachusetts Gas Company, Boston, Mass.: "Massachusetts Gas Company Bulletin," 9" x 6"-m-16.

Memphis Power and Light Company, Memphis, Tenn.: "Tri-Service News," 16" x 10¾"-m-8.

Middle West Utilities Company, Chicago, Ill.: "Inter-company News Bulletin," 11" x 8½"-wk-4.

New Bedford Gas & Edison Light Company, New Bedford, Mass.: 9" x 6"-m-24.

Northern Indiana Gas and Electric Company, Hammond, Ind.: "After Hours," 10¾" x 7¾"-m-16.

Northern States Power Company, Minneapolis, Minn.: "Safety Service," 10¼" x 6¾"-m-16.

Ohio Public Service Company, Cleveland, Ohio: "The Delta," 14⅞" x 10⅝"-bm-8.

Oklahoma Gas and Electric Company, Enid, Okla.: "Sparks and Flashes," 10¾" x 8⅜"-wk-8.

Oklahoma City, Okla.: "The Oklahoma Meter."

Pacific Gas and Electric Company, San Francisco, Cal.: "Pacific Service," 10" x 6½"-q-32.

Pacific Gas and Electric Company, San Francisco, Cal.: "P. G. & E. Progress," 10¾" x 8¼"-m-8.

Pacific Power and Light Company, Portland, Ore.: "Pacific Power and Light Company Bulletin," 9⅜" x 6⅛"-m-64.

Pennsylvania-Ohio Power and Light Company, Youngstown, Ohio: "Pennsylvania-Ohio Electric News," 9" x 6"-m-24.

People's Gas Light and Coke Company, Chicago, Ill.: "People's Gas Club News," 11" x 8"-sm-12.

Philadelphia Company and Affiliated Corporation, Pittsburgh, Pa.: "Public Service Monthly," 12" x 9"-m-48.

Portland Gas and Coke Company, Portland, Ore.: "Gasco Bulletin," 10" x 6¾"-m-36.

Public Service Company of Colorado, Denver, Col.: "The Triad," 10¾" x 7¾"-m-8.

Public Service Company of Northern Illinois, Chicago, Ill.: "Public Service Company of Northern Illinois News," 11⅛" x 8½"-m-16.

Public Service Company of Oklahoma, Tulsa, Okla.: "The Illuminator," 11" x 8½"-sm-4.

Public Service Companies of Pittsburgh, Pa.: "Public Service," 12⅛" x 9"-m-48.

Public Service Electric and Gas Company, Newark, N. J.: "Public Service News," 14" x 10½"-sm-4.

Puget Sound Power and Light Company, Seattle, Wash.: "Puget Sound Electric Journal," 10" x 7"-m-48.

Rochester Gas and Electric Corporation, Rochester, N. Y.: "Gas and Electric News," 9" x 6"-m-42.

San Antonio Public Service Company, San Antonia, Tex.: "The Broadcaster," 11¾" x 8⅞"-m-8.

San Diego Consolidated Gas and Electric Company, San Diego, Calif.: "News-Meter," 11" x 8½"-m-16—"Glow," 9¼" x 6"-m-12.

St. Joseph Railway, Light, Heat and Power Company, St. Joseph, Mo.: "Rylite Employees News," 15½" x 11⅛"-m-8.

St. Paul Gas Light Company, St. Paul, Minn.: "Current-Gas," 8½" x 6¼"-m-8.

(Continued on page 298)

Eastern States Conference Meets

Geographic Division of A. G. A. Has Interesting and Instructive Meeting at Philadelphia

By STAFF MEMBER, American Gas Association

IT would be interesting to tabulate the thoughts of every gas man who attended the fourth annual meeting of the Eastern States Gas Conference, held at the Bellevue-Stratford Hotel, Philadelphia, Pa., April 21 and 22. The program of the meeting was extremely simple, and seemingly more effective because of this simplicity.

Two definite themes were struck by the speakers — public relations and sales. There was also a decided tie-in with the trend of thought of the last A. G. A. convention. Progress was the background upon which the speakers and those taking part in the discussions painted their messages. Over one thousand gas men attended the meeting, and the story they took back home was one of courage and conviction—the gas industry is making progress and will continue to make progress.

S. P. CURTIS

The newly elected officers of the Eastern States Gas Conference are as follows: President, S. P. Curtis, American Gas Company, Philadelphia, Pa.; first vice-president, H. S. Schutt, C. H. Geist & Co., Philadelphia, Pa.; second vice-president, H. H. Newman, Public Service Electric and Gas Company, Trenton, N. J.; third vice-president, Walter Whetstone, United Chemical and Industrial Corp., Philadelphia, Pa.; secretary-treasurer, J. C. Smith, Consumers Gas Company, Reading, Pa.

In opening the meeting, W. Griffin Gribbel, President, called attention to the fact that much of the credit for the progress of the industry is due to the men who have worked without gain to themselves to insure the advancement of science.

"There are unsung heroes in our industry who refuse to see the romance of their work," said Mr. Gribbel. "I refer to the men who labor for the public safety and health while the public sleeps."

The two subjects that occupied most of the program, those of sales and public relations, were covered in a most comprehensive manner.

The following contributed to the sales idea:

John A. Weiser, sales manager, Pennsylvania Gas and Electric Company, York, Pa.; Nils T. Sellman, engineer of utilization, New York Consolidated Gas Company; Lucius S. Bigelow, president, Periodicals Publishing Company, Buffalo, N. Y.

Mr. Weiser brought the Blue Star Campaign that is being promoted by the American Gas Association to the attention of the conference. He outlined the plan in detail, showing that it was practical and had been carefully worked out by the Commercial Section.

Gas refrigeration was the subject presented by Mr. Sellman. He described the construction and operation of the Electrolux machine, illustrating his points by direct reference to a machine that had been set up on the rostrum.

Mr. Bigelow, in his paper entitled

Pennsylvania Gas Association

The Pennsylvania Association elected the following officers for the coming year:

President, Allyn C. Taylor, Reading, Pa.
First vice-president, Joseph Jeffrey, Scranton, Pa.
Second vice-president, John A. Weiser, York, Pa.
Secretary-treasurer, George L. Cullen, Harrisburg, Pa.

The directors to serve three years were elected as follows: H. H. Miller, Gettysburg, Pa.; W. G. Sterrett, Chester, Pa.; F. P. Duggan, Lewistown, Pa.

F. E. Bender, Waynesboro, Pa., was elected to serve as the director to serve an unexpired term.

"Then and Now," told of the development of the commercial side of the industry from the formation of the National Commercial Gas Association in 1905 to the present day. He showed the difference in the attitude of gas companies towards the manufacturer companies, tracing the idea that both should be considered equal, since the success of one is dependent upon the success of the other.

In closing, Mr. Bigelow claimed that marvellous things are done by gas. For proof of this some men were called upon to tell what gas is doing in their localities. These men were J. P. Leinroth, Public Service Electric and Gas Company, Newark, N. J.; J. C. Smith, Consumers Gas Company, Reading, Pa.

The public relations part of the program was presented by the following: Robert S. Binkerd, vice-chairman, Committee on Public Relations of the Eastern Railroads, Eastern President's Conference, New York, N. Y.; G. L. Harris, Harris-Neville, Chicago, Ill.; Howard H. Newman, division agent, Public Service Electric and Gas Company, Trenton, N. J.; W. H. Fulweiler, chemical engineer, United Gas Improvement Company, Philadelphia, Pa.; F. A. Lydecker, assistant general superintendent of distribution, gas department, Public Service Electric and Gas Company, Newark, N. J.; J. S. S. Richardson, director, Pennsylvania Public Service Information Committee, Philadelphia, Pa.; and a symposium on precautions prior to improved pavings by the following: H. B. Andersen, assistant engineer of distribution, United Gas Improvement Company, Philadelphia Pa.; George B. Bains, 111, engineer, Harrisburg Gas Company, Harrisburg, Pa.; Homer Cox, chief engineer, Scranton Gas and Water Company, Scranton, Pa.; Harry Ellis, engineer of distribution, gas department, Public Service Electric and Gas Company, Camden, N. J.; and W. F. Swayze, manager, Bucks County Public Service Company, Newtown, Pa.

Space limits prevent a detailed explanation of the subjects presented by these men. However, the papers of W. H. Fulweiler and F. A. Lydecker were presented with the idea of telling the gas man some of the fundamentals of his business that he probably has not at his finger tips in case of questions asked by customers. They talked on manufacture and distribution.

Alexander Forward, secretary manager of the American Gas Association, addressed the Conference instead of Harry C. Abell, President of the A. G. A., who was unable to be present. Mr. Forward called particular attention to the progress the industry is making. He showed that the "milestones of progress" are marked with definite achievements, and that gradually the industry is branching out, proving in conclusive manner that it is a leader of the present day and will be an even more powerful leader of tomorrow.

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New Jersey Gas Association

The New Jersey Association elected the following officers for the coming year:

President, Louis N. Yetter, Atlantic City, N. J.
First vice-president, John L. Conover, Jr., Newark, N. J.
Second vice-president, Robert A. Koehler, Newark, N. J.
Secretary-treasurer, Louis Stoeker, Newark, N. J.

Gross and Net Heating Values

A Technical Point That Is Often Disregarded in the Calculation of Thermal Efficiencies

THE heating value of gas as determined by a calorimeter gives the maximum utilizable heat in the products of combustion, since the flue gases have been cooled to room temperature. The heating value thus determined is called the Gross Heating Value.

EDITOR'S NOTE

THIS article is taken from chapter 3 of the revised edition of "Combustion" of the Industrial Gas Series that is published by the American Gas Association. The first edition of "Combustion" was exhausted rapidly, making necessary the publishing of this second copy.

Other booklets in the series are: House Heating; Bakeries, Hotels and Restaurants; Food Products. Gas companies that are interested in the industrial gas business are finding these books very valuable for circularizing and educational purposes.

We know that all fuels containing hydrogen will produce water vapor on combustion which will yield a very large amount of heat on condensation. This latent heat of vaporization, needed for the conversion of water to steam or liberated on the condensation of steam to water, only becomes available for heating purposes when the flue products are cooled to such a temperature that the water actually condenses. In effect, this means back to the starting temperature; and even then there is some loss because the flue gases will still be saturated while the entering air may be quite dry. In calorimetric determinations an allowance is made for this loss.

This can best be explained by taking an actual case. Consider a retort coal gas which for perfect combustion produces 1,208 cu.ft. of H_2O vapor. The total volume of flue products is 5.702 cu.ft. The partial pressure of water vapor is .212 atmospheres or 6.34 inches Hg. From steam tables it will be seen that the saturation temperature corresponding to this partial pressure is 143 deg. F. Therefore, none of the latent heat becomes available until the flue products are cooled below this point. When the temperature reaches 117° the vapor pressure is 3.16 in. Hg. so that about one-half of the water vapor would have condensed and its latent heat made available. Excess air reduces the partial pressure of the water vapor, so that the temperature at which saturation is reached is even lower. Suppose in this case the volume had been doubled by excess air, then condensation would not commence until 117° was reached. If enough excess air is added condensation will not begin even by the time the products have cooled to 60° F.

PROOF

That this is the usual case can readily be understood by noting that except in the case of water heaters, hot water house heating boilers and one or two other appliances, no condensation occurs. If a pot of cold water is put on a range, condensation only takes place while the water is quite cold, as evidenced by the momentary formation of water on the outside of the pot. This soon disappears again.

If we actually want to calculate the amount of heat recovered down to any given temperature, it is easiest to consider heat available from the water vapor as that represented by the gaseous phase down to the temperature of condensation plus the latent heat of water condensed. The latter value can be obtained from steam tables. For convenience the pressure in atmospheres, temperatures and latent heats for the saturation points of

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EDITORIAL

"Educating the Future Employee"

By ALEXANDER FORWARD
Secretary-Manager

W. GRIFFIN GRIBBEL, who is quietly and modestly building for himself a monument through his chairmanship of the Committee on Co-operation with Educational Institutions of the American Gas Association, pointed out at the last annual convention the remarkable growth from the planting of a single grain of mustard seed. "A lecture or two," he said, "arranged at many institutions has planted seed which have borne fruit in the form of healthy and active interest of faculties in our problems, establishment of scholarships, promotion of research, equipment of special laboratories and young men equipped for work in the gas companies."

THE WORK IS NOT LIMITED IN SCOPE

But this matter, as Mr. Gribbel has seen from the beginning, goes much further than to the future employee of the gas company. Not only does it help to attract to the industry young men who are brought to a realization of its opportunities and its future, but its leaven, to change the simile, will quicken the whole lump of collegiate life. The most prominent and lasting part of the famous Cheshire cat in Alice in Wonderland was its grin, and the smile remained after the cat had vanished. Not alone are students given information on the technical phases of the gas industry but those who go into other fields carry with them a lifetime impression of its stability, its vital place in the life of the times and the necessity in the public interest for its untrammelled development through individual private initiative. Many of these men will occupy positions of importance in the business and public life of the next generation and the impressions received in their formative years will remain with them as long as they live.

A PLEA FOR ADDITIONAL ASSISTANCE

That is why the group of men composing this, one of the Association's most important committees, are giving their time and a good deal of their effort to this co-operative work. It is not because they or the gas industry expect to realize any immediate results, but because they have projected their thought into the future and are helping to build a foundation in the minds of leaders of American life tomorrow.

The scope of the Committee's work has grown rapidly and now extends from Massachusetts to California and from Minnesota to Florida. It is not an easy task now to take care of the demand from educational institutions, which has reached National proportions. We shall need increasing help, not only from the State Committees on Public Utility Information, which have been so efficient, but from all our forces.

A Local Tie-in With the Architect's Contest

The Laclede Gas Light Company Uses an Exhibit and a Series of Three Letters

BY means of an exhibit and three letters being sent to architects, plumbers and gas fitters, building contractors and realtors, the Laclede Gas Light Company has worked out a local tie-in with the architect's contest of the American Gas Association.

The architect's contest has proved even more popular than was hoped for. Some 1300 architects have requested further details and entered the competition.

Since the contest does not close until May 15, the methods of the Laclede Company may be of interest to other companies who wish to cooperate with the A. G. A.

The letter sent to architects is as follows:

Dear Sir:—

The American Gas Assn. with the aid and co-operation of The American Institute of Architects is pushing a nation-wide Architectural Contest for Gas Equipped Homes. Nine prizes are to be distributed in this contest ranging in amounts from $1000 down to $100. The contest calls for plans for a six-room detached house of a practical design that may be erected anywhere in the country for approximately $12,500. The contest opened March 1st and all entries must reach contest headquarters not later than May 15th, 1926.

Announcement of this contest was made to the Architectural fraternity in the February issues of the leading architectural magazines and booklets giving full details of the contest were mailed to all the architects whose addresses were available. In the hope that we may be helpful to the members of the architectural profession in St. Louis who may enter this contest, we propose to maintain a complete display of such gas appliances as would go into a house of the type named in the contest announcement. In addition to the display of appliances we plan to show a layout of such accessories as may be necessary or desirable when gas appliances are used.

We will be pleased to have you and your employees visit this display which you will find on our mezzanine floor.

While it is more than likely that the Architectural Journals will carry complete information concerning this contest we want you to feel at liberty at all times to call on us for any information which you may require about this contest or for such other service as we may be able to give you.

A copy of the letter sent to building contractors and realtors is given below.

Dear Sir:—

The American Gas Assn. with the aid and co-operation of The American Institute of Architects is now carrying on a national Architectural Contest, which is open to all architects, draftsmen and students of Architectural Schools. Nine prizes are to be distributed in this contest ranging in amounts from $1000 down to $100. The contest calls for plans for a six-room detached house of a practical design that may be erected anywhere in this country for approximately $12,500, and which shows the best application of gas equipment.

For the purpose of familiarizing those who

The Architect's and Builder's Section the Laclede Gas Light Company Has Established on Its Mezzanine Floor

may decide to enter this contest with the modern gas equipment for the home, we have arranged a special display of these appliances on the mezzanine floor of our main office, Olive at Eleventh Street. All of our architects have been invited to come in and inspect these appliances.

Your affiliation and connection with the building industry encourages us to presume that you will be interested in any movement tending toward improvement in home building methods, or in modern home equipment. We are therefore inviting you to call and inspect our display at your convenience. The display will be maintained during the period covered by the Architectural Contest, which will close about the middle of May, 1926. Hoping that you will favor us with a visit, we remain.

This is the proposed letter to plumbers and gas fitters.

Dear Sir:—

The American Gas Assn. with the aid and co-operation of The American Institute of Architects is now carrying on a national Architectural Contest, which is open to all architects, draftsmen and students of Architectural Schools. Nine prizes are to be distributed in this contest ranging in amounts from $1000 down to $100. The contest calls for plans for a six-room detached house of a practical design that may be erected anywhere in this country for approximately $12,500 and which shows the best application of gas equipment.

For the purpose of familiarizing those who may decide to enter this contest, with the most modern gas equipment for the home, we have arranged a special display of these appliances on the mezzanine floor of our main office, Olive at Eleventh Street. All St. Louis architects have been invited to come in and inspect these appliances.

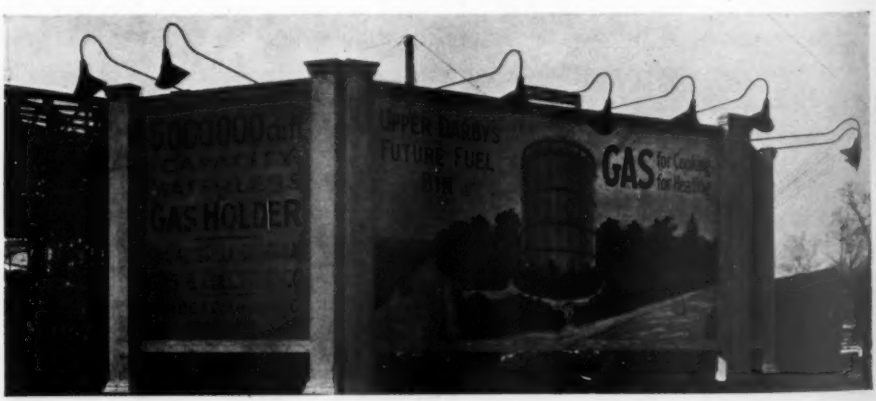
As one of the results of this Architectural Contest we expect that more adequate provision will be made in the matter of gas pipe installation, and in flue construction for gas appliances in the buildings which are to be planned and erected in the future. Many new uses for gas have been discovered in recent years and improvements have been made in gas appliances, especially in those which supply heat for domestic requirements. Your connection with that particular branch of the building industry whose duty it often becomes to supervise or to install the necessary piping for gas appliances encourages us to believe that you will be interested in the many modern gas appliances now available for domestic use. We invite you therefore to come in at your convenience and inspect this display; it will be maintained during the period covered by the Architectural Contest which will close about May 15th, 1926.

INDUSTRIAL GAS BOOKS FOR SALE

THE ASSOCIATION now has for disposal a complete series of industrial gas books. They are:

Bakeries, Hotels and Restaurants
Combustion
Food Products
House-Heating
Industrial Data Sheets

The price of the books is $1.50 a copy to A. G. A. members, with the exception of the Industrial Data Sheets which are seventy-five cents a set. Special prices can be quoted on lots of thirty or more.



During Construction of the New Holder at Upper Darby, Pa., a Large Illuminated Sign, Showing the Holder as It Will Appear When Completed, Is Viewed by Thousands of Passersby Daily.

The Baltimore "Training-In" Plan

As Modified and Applied to the Fitting Department; Method of Procedure

By C. H. KRUELLE, Consolidated Gas, Electric Light & Power Co., Baltimore, Md.

THE Fitting Department adopted the Company's "Training In" Plan for New Employees on June 1, 1925. (This plan was described in the March, 1925, issue of THE MONTHLY. To date more than fifty fitter's helpers have been trained by this method. In other words, the Training Representative in this department has supervised the "training in" of an average of six men a month over a period of nine months.

Kit Used in Performance Test: Each Fitting is Numbered and a List Containing These Fittings and the Corresponding Numbers Is Kept by the Training Representative.

Since the men in the Fitting Department are required to perform mechanical rather than clerical work, certain modifications of the "Training In" Plan were necessitated. As a result of this modification each new fitter's helper is given a Training Guide containing a list of his duties and instructions to ask for explanations of each duty. When a duty has been satisfactorily explained the fitter's helper is required to place his initials after that duty to denote understanding.

All mechanics in the Fitting Department are originally employed as fitters' helpers, and for that reason the job of fitter's helper is the only work being analyzed and listed on Training Guides. Training sheets have been prepared for three classes of fitter's helpers, viz., Line-In Helpers, Meter Installation Helpers, and Appliance Helpers.

After the new employee has been given a Training Guide and has initialed each duty, he is given another Training Guide containing a set of questions based on the work explained. When the new employee has submitted his answers, the Training Representative examines them to discover what additional training is required.

Subsequent to the training mentioned above, every fitter's helper is examined by the use of a performance test. This performance test is to measure the man's knowledge of fittings used by the company in installing gas appliances. The method used in determining this knowledge is simple and logical. The man to be examined is given a kit (shown in picture) containing a representative group of gas fittings. He is then directed to select from the kit certain fittings asked for by the Training Representative.* If the new employee is not familiar with a satisfactory number of fittings he is requested to go back on the job and learn more about fittings. When the fitter's helper has shown a satisfactory knowledge of fittings, his rating is placed on the Training Guide and Record Sheet and his training ceases.

*Fittings must be known by sight, the sizes being determined from experience in handling rather than from using an instrument of precision.

Eastern States Conference

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In addition to the papers already covered, J. A. Perry, gas engineer, United Gas Improvement Company, Philadelphia, Pa., spoke on "Past and Present Trend in the Developments of Gas Manufacture," and Theodore J. Grayson, director, Evening and Extension schools, University of Pennsylvania, talked on Perry and Mr. Grayson made "inventories" of the past and present, giving ventories" of the past and present, giving to the Conference much data that were not hitherto available.

The Conference had the unique distinction of seeing the first showing of the new U. G. I. motion picture, entitled "The Ghost in the Crucible." Other features of the meeting were the Gas Hour on the Air, when a program was broadcast through the courtesy of Strawbridge and Clothier, Philadelphia. Miss Ada Bessie Swan, director of home economics, Public Service Electric and Gas Company, Newark, N. J., spoke to the radio audience on "Gas in the Home." The U. G. I. Music Masters rendered a concert and the "Gas House Quartette," of the Associated United, Combined, Consolidated Light Heat, Power, Railway and Water Corporation, Pumpkin Center, Pa., ended the hour with several selections.

The U. G. I. Music Masters also played at the beginning of the last session of the Conference.

The dramatic touch was added when A. J. Van Brunt, chairman of the Accident Prevention Committee of the A.G.A., awarded McCarter medals to the following: J. Patrick Kerwin, Public Service Electric and Gas Company, New Brunswick, N. J.; Leon McCarthy, Public Service Electric and Gas Company, Camden, N. J.; Howard Beardsley, U. G. I. Company, Philadelphia, Pa.; Frank Trembly, Public Service Electric and Gas Company, East Orange, N. J. A medal and bar were awarded to Charles B. Cooke, U. G. I. Company, Philadelphia, Pa., for saving two lives. A certificate was awarded Wm. Weaver, Jr., Public Service Electric and Gas Company, Camden, N. J.

The annual banquet was held the evening of the 22nd. Captain Irving O'Hay, U. S. Army (retired), was the speaker. The Anthracite Premier Quintette and Ehrenzeller's Orchestra furnished the musical program. S. P. Curtis, the newly elected president, spoke briefly.

RESOLUTION

DIRECTORS of the United Gas Improvement Company paid tribute to the late Randal Morgan at their regular monthly meeting on March 25. The following resolution was adopted and spread on the records of the company:

Randal Morgan, for more than forty years an officer of The United Gas Improvement Company, died on Saturday, March 20, 1926.

Mr. Morgan entered the service of the Company as General Counsel in 1882. In 1892 he was elected vice-president. In 1923 he resigned the office of vice-president and was made Chairman of the Executive and Finance Committee, holding this latter office at the time of his death.

Throughout this period of 44 years he devoted his untiring energy and his high abilities to the upbuilding of this Company, and its growth to its present position of strength and influence is due in large measure to this devotion. As a lawyer he possessed such a thorough understanding of fundamental legal principles as enabled him to reach sound conclusions affecting the policies of the Company without dependence upon decided cases. As vice-president and later as Chairman of the Executive and Finance Committee, he brought to bear upon the complex and rapidly developing public utility problems a power of analysis and a force of personality which found no obstacle insuperable. His mind was essentially constructive. He long since perceived, as few men then did, the certainty of a great development and growth in public utilities.

As a man, Mr. Morgan possessed in an unusual degree a charm of manner and such an interest in men and things as endeared him to all with whom he was associated

With a keen sense of loss and in grateful remembrance of the services which he has rendered to The United Gas Improvement Company, we record our appreciation of Randal Morgan as a lawyer, as an executive, as a financier, as a man and as a friend.

THE TIDE OF MEN AND AFFAIRS

HARRY A. SUTTON is now in charge of the industrial fuel department in the Newark, N. J., district of the Public Service Electric and Gas Company.

THE MAIL ADDRESS of R. J. Canniff has been changed from 18-20 East 41st St., New York, N. Y., to 1325 South Michigan Ave., Chicago, Ill.

W. E. NICHOLS, superintendent of the Northern Indiana Gas and Electric Company, South Bend, has been appointed acting manager of industrial relations of the company. He will be located at Hammond, Ind.

B. H. GARDNER, in addition to his duties as assistant to Morse Dell-Plain, vice-president of the Northern Indiana Gas and Electric Company, has been made general sales and service manager.

F. H. BALL, manager of the Fitchburg Gas and Electric Company, has been elected vice-president of that company and also vice-president of the Montpelier and Barre Light and Power Company.

WARREN D. STEWART, formerly with the Western United Gas and Electric Company, Aurora, Ill., is now with Stone and Webster, Inc., 147 Milk St., Boston, Mass.

RUTHERFORD VAN VLIET, who has been connected with the Mobile Gas Company, Mobile, Ala., is now with the New York and Richmond Gas Company, Staten Island, N. Y.

FRANK FRANCE, of the H. K. Barrett and Company, Newark, N. J., is now the New Jersey representative of the Geo. D. Roper Corporation, Rockford, Ill.

GEO. F. STEVENS, who has been engineering assistant in the gas utilization department of the Consolidated Gas Company of New York, N. Y., has joined the A. H. Wolff Gas Radiator Company as sales engineer specializing in warm air gas radiators and gas-fired steam radiators in the metropolitan district.

HAROLD B. SMITH, formerly of the Consolidated Gas Company of New York, N. Y., is now connected with the Central Hudson Gas and Electric Company, Poughkeepsie, N. Y.

J. W. DUVALL has changed from the Kansas Gas and Electric Company, Wichita, Kansas, to the Oklahoma Gas and Electric Co., Oklahoma City, Okla.

CHARLES A. MUNROE, chairman of the board of directors of the Laclede Gas Light Company, St. Louis, Mo., has been made chairman of the advertising committee of the 1926-27 municipal advertising campaign conducted by St. Louis.

LOUIS N. YETTER, commercial manager of the Atlantic City Gas Company, Atlantic City, N. J., has been presented with an engraved tablet by the Atlantic City Real Estate Board in recognition of the cooperation extended to the "Know Your City Day," which was held last November. The tablet is silver plated, mounted on mahogany.

THOMAS N. MCCARTER, president of the Public Service Corporation of New Jersey, has been elected a director of the United Gas Improvement Company to fill the vacancy caused by the death of Randal Morgan.

RICHARD R. YOUNG is now vice-president in charge of sales of the Public Service Electric and Gas Company of New Jersey.

SNOWDEN H. SUMMERS, one of the best known of the "old school" newspaper men, died recently at his home in New York City. Mr. Summers was director of publicity of the Emergency Committee of the American Gas Association. He was well-known to many members of the Association.

COMPANY CHANGES

THE STREET ADDRESS of the Peerless Manufacturing Company, Louisville, Ky., has been changed from 15th and Ormsby to 324 W. Main Street.

THE LINCOLN TRACTION COMPANY and the Lincoln Gas and Electric Company, Lincoln, Neb., have been joined together in a new company called the Lincoln Public Service Company.

THE MERIDEN, CONN., GAS LIGHT COMPANY has been acquired by the Connecticut Light and Power Company.

OUR NEW MEMBERS

GAS COMPANY MEMBERS

Wisconsin Traction, Heat, Light & Power Co., Appleton, Wisc.
Tacoma Gas & Fuel Company, Tacoma, Wash.
Iowa Service Company, Lincoln, Neb.

MANUFACTURER COMPANY MEMBERS

M. J. Tierney Co., Rochester, N. Y.
Alcazar Range & Heater Co., Milwaukee, Wisc.
Crown Stove Works, Chicago, Ill.
A. M. Byers Co., Pittsburgh, Pa.
The Favorite Stove & Range Co., Piqua, Ohio.

ACTIVE MEMBERS

Wright, Cletus Orlen, Illinois Power & Light Corp., E. St. Louis, Ill .

Schmulbach, Sam C., Illinois Power & Light Corp., E. St. Louis, Ill.
Moeller, Jr., William, Midway Gas Co., Los Angeles, Calif.
McAllister, Henry C., Southern California Gas Co., Los Angeles, Calif.
Ingram, Frank C., Southern California Gas Co., Los Angeles, Calif.
Banks, Francis Marion, Southern California Gas Co., Los Angeles, Calif.
Holden, Frank Harvey, Southern California Gas Co., Los Angeles, Calif.
Holtz, Lee, Southern California Gas Co., Los Angeles, Calif.
Herzfeld, Hermann A., Gasversorgung Ostsachsen A-G, Dresden, Germany.
Wilcox, Lee E., Poudre Valley Gas Co., Fort Collins, Colo.
Tinsley, Shad J., Public Service Co. of Colo., Denver, Colo.
Atkinson, Kathleen, Providence Gas Co., Providence, R. I.
Gardner, John R., Central Hudson Gas & Electric Co., Poughkeepsie, N. Y.
Hill, Fred C., United Gas Improvement Co., Philadelphia, Pa.
Triplett, Virgil L., Peoples Gas & Electric Co., Chillicothe, Mo.
Bloor, Harold Edgar, York Gas Co., Davygate, York, England.
Lampelius, Karl, Deutscher Verein von Gas, Berlin, Germany.
Finch, Russell W., Westchester Lighting Co., Yonkers, N. Y.
Hockenbeamer, A. F., Pacific Gas & Electric Co., San Francisco, Calif.
Fulton, Raymond A., Iowa Service Co., Lincoln, Neb.
Schacht, R. L., Iowa Service Co., Lincoln, Neb.
Graham, Robert, Nebraska Gas & Electric Co., York, Neb.
Wahl, Charles B., The U. G. I. Contracting Co., Philadelphia, Pa.
Kennedy, Virgil M., Citizens Gas & Fuel Co., Terre Haute, Ind.
Dalton, Edward John, Westchester Lighting Co., New Rochelle, N. Y.
Steinmeyer, George W., Nebraska Gas & Electric Co., Lincoln, Neb.
Archer, J. B., Iowa Service Co., Lincoln, Neb.
Rea, F. I., Nebraska Gas & Electric Co., Lincoln, Neb.
Goodrich, Thomas MacLenathen, The Bartlett Hayward Co., Baltimore, Md.
Simmons, Ernest N., Los Angeles Gas & Electric Corp., Los Angeles, Calif.
Dreiman, Roy Nelson, Western United Gas & Electric Co., Aurora, Il.

OPPORTUNITIES ABROAD

CAST IRON PIPE is wanted for purchase by a company located at Barranquilla, Columbia. Accredited companies may learn more of this opportunity by referring to Foreign Trade Opportunity 19702, Department of Commerce.

COAL CONSUMPTION

GAS COMPANIES in the United States used 7,887,500 tons of coal for manufacturing gas in 1924. Of this amount 1,307,500 tons were anthracite and 6,580,000 were bituminous.

Engineers have reported to the American Gas Association that a ton of coal converted into gas by a central station and used for cooking and heating is the equivalent of two tons of coal burned raw. Because of this the manufactured gas industry is taking an important place in conservation programs.

Have You a Flow Sheet?

(Continued from page 277)

use allows these articles to be set back so that they do not detract from the roominess of the main part of the kitchen.

A kitchen laid out along these lines would meet the approval of the most particular efficiency engineer. In addition, it will continually be a source of pleasure to the housewife who has the foresight to follow a "flow sheet" in laying out her kitchen in a scientific manner.

The Tenney Plan

(Continued from page 266)

heavy, or too thin, and should follow the diet list inclosed. Your habits of life need a careful overhauling. Instead of working until six or seven o'clock, you should go home at four and dig in the garden or play golf. By following instructions you will greatly improve your condition; but if you go on in the present manner you may find yourself in a serious state within six months or a year.'

"Health examinations are useless if men lack the force of will to follow through. Ill health comes to the saints of earth as well as to sinners. There are diseases whose ravages no merely mortal power can stay; but, also, millions of individuals can add to their health by the sheer will and strength of character to observe expert and authoritative instructions. But this is a kingdom not given to moral weaklings to inherit. It is not given to the man or woman who takes just one more portion of beef or cup of coffee when the doctor has said no.

"A great educator has remarked that in the building of character, avoidances and denials are quite as important as acceptances and affirmations. The health examination can reduce disease and lengthen life, but it does not enable us to escape from personal responsibility and reality. These we must face just as before."

Affiliated Association Activities

A. E. Merchant

Southern Gas Association

The officers elected at the recent meeting of the Southern Gas Association for the coming year are as follows: President, A. E. Merchant, New Orleans Public Service Inc., New Orleans, La.; 1st vice-president, P. S. Arkwright, Georgia Railway & Power Co., Atlanta, Ga.; 2nd vice-president, Ray A. Ziegler, Jacksonville Gas Co., Jacksonville, Fla.; and secretary-treasurer, J. P. Connolly, Charleston Consolidated Railway & Lighting Co., Charleston, S. C. The following directors were also elected: F. H. Knapp, Standard Gas Equipment Corp., New York, N. Y.; R. J. Hole, N. C. Public Service Co., Greensboro, N. C.; F. H. Matthes, Tidewater Power Co., Wilmington, N. C., and W. H. Taylor, Georgia Railway & Power Co., Atlanta, Ga. It was voted to hold the 1927 Convention in Atlanta, Ga., during April.

The Committee which was responsible for the Second Annual Gas Meter Lecture Course held under the auspices of the Southern Gas Association last year in Atlanta, Georgia, has published the minutes of the course. A limited number of copies are available and can be secured at a minimum price through M. H. Pittman, Georgia Railway & Power Co., Atlanta, Ga. The papers and discussions included in these minutes cover modern methods of handling and repairing tin gas meters. A short description of a cast iron meter is also included. It is the belief of the Committee that this volume will be a valuable reference work on meters.

Pacific Coast Gas Association

The regular Northwest Regional Meeting of this Association will convene at Portland, Oregon, on May 6 and 7. These dates are somewhat earlier than has been customary, but this is desirable as this meeting will, like other regional meetings held this year, include, as part of the program, a day devoted to business meetings of the four sections. This practice, Secretary J. Clifford Johnstone says, is proving of great benefit to the committee work of the Association and promises to be reflected in the quality of reports made at the Convention. Chairmen of all important committees are expected to be in attendance at Portland in order to confer with their committee men from the Northwest in regard to the contents and recommendations to be included in reports. These meetings will take place on May 6 and will be followed by a general meeting on May 7.

The Annual Convention of this Association will be held at the Hotel Vista del Arroyo in Pasadena, Calif., August 23 to 27. W. M. Thompson of Pasadena has been appointed Chairman of the Convention Committee.

Illinois Gas Association

The new officers for the ensuing year of the Illinois Gas Association are as follows: President, W. A. Bertke, Illinois Power & Light Corporation, East St. Louis, Ill.; vice-president, Paul D. Warren, Peoples Gas Light & Coke Company, Chicago, Ill.; secretary-treasurer, R. V. Prather, Springfield, Ill. The following were elected to the Board of Directors: F. F. Cauley, C. W. Bradley, H. S. Whipple, R. E. Chew, R. B. MacDonald, J. E. Johnson, B. J. Mullaney, R. S. Wallace and R. V. Prather.

Missouri Association of Public Utilities

The twentieth annual convention of this Association will be held May 3, 4 and 5, in Springfield, Mo. Secretary-Treasurer F. D. Beardslee announces that a splendid program will be presented.

Oklahoma Utilities Association

J. A. Frates

The recently elected officers of this Association for the coming year are: President, J. A. Frates, Oklahoma Union Railway Co., Tulsa, Okla.; 1st vice-president, J. H. Buell, Oklahoma Power Co., Tulsa, Okla.; 2nd vice-president, L. W. Scherer, Yale Telephone Co., Yale, Okla.; treasurer, W. R. Emerson, Oklahoma Gas & Electric Co., Oklahoma City, Okla.; manager, E. F. McKay, Oklahoma City, Okla.

Wisconsin Utilities Association

On May 13 and 14 the Gas Section will meet at the Hotel Retlaw in Fond du Lac, Wisconsin, in what will be an important technical session. The report from the Gas Fellowship at the University of Wisconsin will be on "Experiments on the Proper Size of Combustion Chamber for Furnaces" by Professor Kowalke and Mr. Carlson. The results of these experiments are interesting. The Coke Committee is to make a report. The following papers will be presented: "Industrial Gas Problems and Progress," by G. H. Head; "Gummy Deposits in Meters," by George E.

Wagner and "Recent Developments in the Gas Business," by Louis Stein. R. J. Canniff, Chairman of the Commercial Section of the American Gas Association, will address the Convention on "A National Sales Problem and Its Answer." The election of a chairman and vice-chairman of the Gas Section will take place at this meeting. Members are urged to bring their wives as special arrangements are being made for their entertainment. There will be a musical program and dancing in connection with the annual dinner. Inspection trips are being arranged through the local gas plant which is of the vertical retort type and through the main shops of the "Soo" Railroad, which includes some interesting applications of gas service in railroad shops, such as flue furnace, paint burning and tire removing.

Empire State Gas & Electric Association

The Commercial Section of this Association will hold its annual meeting at the Black River Valley Club, Watertown, N. Y., on Thursday and Friday, June 24 and 25. The program will be announced later.

Michigan Gas Association

The Annual Convention of this Association is to be held June 24, 25 and 26, at the Grand Hotel, Mackinac Island, Michigan. The Michigan Electric Light Association will hold its meeting at the same time and the two associations will have a joint session on the morning of June 25th, at which addresses will be delivered by Floyd W. Parsons and Alexander Forward and the annual report of Alfred Fischer, Director of the Michigan Committee on Public Utility Information, will be given. There will also be a joint entertainment program to include a banquet on the evening of June 24, at the Hotel. The business program will be of unusual interest. Important subjects will be the report of the special rate committee of which F. A. Newton is chairman, "Developments in House Heating" and kindred discussions. Another special feature will be the report of the Fellowship Committee in charge of the work being done at the University of Michigan under the direction of Professor Alfred H. White. The holder of the Fellowship this year has done some very valuable work on the disposition of ammonia. There will also be a paper by Professor McCool of the Michigan State College on "Ammonia Sulphate as a Fertilizer." Mr. Frank W. Steere will present a paper on "Developments in Water Gas Manufacture."

Secretary A. S. Schroeder states that a great many improvements have been made since last year in the Grand Hotel, all of which should help in assuring an even more delightful convention than the one held there last year.

Indiana Gas Association

The Indiana Gas Association will hold a joint meeting with the Indiana Public Utility Association and the Indiana Electric Light Association on June 3 at West Baden Springs Hotel, West Baden, Ind., and a meeting of its own on June 4. It is hoped that plans will materialize whereby the three above named associations will be consolidated at that time. The meeting will be an important one for the utility executives of Indiana and it is expected to be the biggest and best one ever held in that State. Hotel reservations should be made at an early date directly with the hotel.

FITKIN BUYS BUILDING

FITKIN UTILITIES and the General Engineering and Management Corporation have purchased the sixteen story building at 84 William Street, New York, N. Y., and will be located in their new home after May, 1927.

Employee Magazines

(Continued from page 286)

Southern Minnesota Gas and Electric Company, Albert Lea, Minn.: "High Tension."

Southern Public Utilities Company, Charlotte, N. C.: "Southern Public Utilities Company Magazine," 9" x 6"-m-32.

Southern California Gas Company, Midway Gas Company, Los Angeles, Cal.: "Gas News," 10" x 7"-m-32.

Southern Utilities Co., Palatka, Fla.: "Southern Utilities Company," 11" x 8"-m-24.

Tennessee Electric Power Company, Chattanooga, Tenn.: "Electro Topics."

Tenney Co., Charles H., Boston, Mass.: "Tenney Service."

Union Electric Light and Power Company, St. Louis, Mo.: "Wire and Pipe," 11⅞" x 8⅞"-m-24.

United Gas Improvement Company, Philadelphia, Pa.: "U. G. I. Circle," 10⅝" x 7⅛"-m-48.

United Light and Railways Company, Davenport, Iowa: "The Go-Getter," 12" x 9"-m-8.

Utah Gas and Coke Co., Salt Lake City, Utah, "The Utagas Pilot," 8½" x 5½"-m-4.

Utica Gas and Electric Company, Utica, N. Y.: "Utica Gas and Electric News," 9" x 6"-m-16.

Western States Gas and Electric Company, Stockton, Calif.: "Fumes and Flashes," 10" x 6⅞"-m-16.

Wisconsin Public Service Corporation, Milwaukee, Wis.: "Together," 10⅜" x 7"-m-12.

Wisconsin Power and Light Company Madison, Wisc.: "Power and Light News."

Women's Part in the Public Relations Program of the Gas Company

By MISS ANNE McLEMORE, Memphis Power and Light Company

THROUGH the portals of experience woman has found her place in the business world. The experiment is comparatively new, but it has proved successful, and it is to her eternal credit that advancing civilization has recognized her worth and accepted her service.

Miss Anne McLemore

Service brings to mind a factor of infinite importance to the public — its utilities — and the question, "What is woman's part in the public relations program of the gas company," can best be answered by defining what is meant by public relations, and how, through an increased knowledge of her company's aims and policies, a woman employee perfects herself for her part in fostering better understanding by the public and insuring good will for the company she serves.

Recent years have brought about a widened vision interwoven with a practical imagination that has converted public sentiment from old antagonisms regarding public utilities, and now the utilities render service to the public on a sound basis of friendly contact. The same idea that changes the "complaint department" into the "adjustment department," obviating the contradictory element and supplanting it with the never failing formula of courtesy and tact, is what has helped more than any one thing in achieving pleasant public relations.

The program of the gas company, as with other public corporations, is fundamentally a general summing up of essentials that go to make success. This is attained through the combined force of its employees.

Women have a part in almost every department of the company. Meeting customers daily across the counter, demonstrating and selling appliances for the ease and comfort of every modern home, adjusting differences that naturally arise, are some of the duties that are assigned to the women in the sales department. A pleasing personality coupled with efficiency is the key to knowing the right moment for doing the right thing. This is applicable to every other department as well. In the capacity of bookkeepers, stenographers, and clerks women serve intelligently and faithfully, being interested in what they accomplish and striving to increase their proficiency along specific line of business. It is the reward of work well done that leaves the satis-

fied glow and furthers the incentive to forge ahead.

One method of learning the business, exchanging ideas and acquainting themselves with new and flexible ways and means, has become, in the last few years, popular and successful among women employees. It is organizing into groups which devote certain time to instructive and constructive information derived from books on technical subjects, and lectures from executives qualified to speak authoritatively on vital questions pertaining to the company's welfare and progress.

It may be that the thought contained in the following lines is instilled in the minds of progressive women: "The world is moving along so fast that we have to run as fast as we can to stay where we are."

Industrial Course to be Given at U. of Illinois

THE University of Illinois, through the College of Engineering, in co-operation with the Illinois Gas Association, is offering a three weeks' Short Course in Industrial Gas Engineering on June 21 to July 10, 1926. (June 21 to July 3, 1926, at Urbana. July 5 to July 10 will be conducted on the home study plan.)

The object of this course is most clearly set forth in the final problem set for each student enrolled. (The week of July 5 is to be devoted to this work.) It is stated as follows: Each student is required to submit a complete report covering his recommendations as to the equipment that should be installed, to displace other fuels now being used by certain prospective customers in two of the three fields of gas service, these being the industrial, the house heating, and the hotel and restaurant. This report must cover:

(a) A complete analysis of the present method of heating.

(b) The equipment recommended to displace the old appliances.

(c) Recommended main extensions.

(d) Size of Service.

(e) Capacity of meter required.

(f) Layout of interior piping.

(g) Temperature control to be used.

(h) A sales letter to the customer justifying the proposed installation.

The outline of the course given in detail in the program below will consist of lectures, demonstrations, problems and practice in the principles and information necessary to enable each student to make the above report and to thoroughly convince himself of the advisability of using gas as a fuel.

A final examination in the various phases of the work of the course will be given and the grade in this examination, together with the grade obtained from the final report, will be used as the basis of the report sent to each general manager of the gas company sending men to this course. Recommendations, if necessary, will be made concerning any part of the work of the course in which their men are not sufficiently trained.

In order to give each man an opportunity to study and to use equipment necessary for the economic use of gas, manufacturers will be invited to send the various types of burners, and their service equipment, such as meters, regulators, etc., together with slides showing actual installations and methods of use.

Inquiries concerning the course should be addressed to either Professor T. E. Layng, Department of Chemistry, University of Illinois, Urbana, Illinois, or A. B. Greenleaf, 325 Peoples Gas Building, Chicago.

GAS FOR FLORISTS

A Corner of a Chicago Florist's Shop. It Is a Gas-Steam Radiator, Like Any Other Radiator Except it Keeps a More Favorable Temperature for Flowers.

ACCOUNTING SECTION
DEWITT CLINTON, Chairman ALBERT L. TOSSELL, Vice-Chairman
H. W. HARTMAN, Secretary

The Organization of the Functions of the Controller

WITHIN the last two or three years the controller of one company has been included whenever two or three officers were selected for the purpose of developing any particular new policy or plan of procedure. For example, when the question of group insurance was under consideration, the controller was one of a committee of three to decide on the plans and the company which was to be recommended to the board of directors. When application was made to the stock exchanges for listing of the company's stock, the controller was one of three officers authorized to represent the company. In the development and presentation of a plan to sell stock to employees, which has not yet been completed, the controller is also a member of a committee of two. Whenever there is a question of changes in prices, change of basic sales plans, rebuilding of plants, or questions of policy of one kind or another, this controller is usually requested to present his ideas on the subject before final decision is rendered.

This is an interesting comment which appears in a paper on the "Organization of the Functions of the Controller" presented by Arthur Lazarus, C. P. A., at a recent meeting of the American Management Association. This paper covers, in addition, the functions of the controller in a life insurance company, in the United States Post Office, the United States Army, the municipality of New York City, a bank, a railroad, a retail organization, and a manufacturing company.

The common underlying functions of the controller are summarized as follows:

1. The controller is responsible for the devising, installation and maintenance of the accounting system.

2. The general books are under his control.

3. He has jurisdiction over accounts receivable and all that entails.

4. He has jurisdiction over accounts payable and all that entails.

5. He is responsible for payroll accounting; extending and auditing of all employees' time records; and keeping of all payroll ledgers showing the earnings and deductions by departments and individuals.

6. He has under his jurisdiction stocks and supplies, whether merchandise, raw, semi-finished, or finished.

7. He is responsible for the taking of inventories.

8. He has wide auditing powers over sales, purchases, disbursements and property of every description.

9. Where his functions are logically carried out, he maintains a check over the treasurer's cash receipts, disbursements and bank balances.

10. In a manufacturing company he has charge of the cost accounting; and in the merchandise undertaking he is responsible for the expense distribution.

11. He has the custody of books and the administration of a large office of accountants, mail clerks, stenographers, filing clerks, etc.

12. (a) He is responsible for the preparation of detailed statements of income, operation, disbursements, accounts and liabilities, and (b) Closely connected therewith is the preparation analysis, and interpretation of statistical information covering all the operations of a business

(Continued on page 306)

The Elimination of Phenol-Bearing Wastes

(Continued from page 282)

ment cost and little or no use of caustic soda as compared to the benzol-washing process, and it possesses in common with the latter process the elimination of much corrosion of the quenching and allied equipment and also of the possibility of complaints from users of coke quenched with still-waste.

In the absence of the full patent and further data, the writer of this paper offers no discussion or analysis of the process.

SUMMARY

The essential features of the processes evolved for the elimination of phenol in ammonia still-waste have been reviewed briefly. The degree of industrial development of these processes has been presented insofar as it has been found available. A recently developed process in which the phenol is removed from the ammonia liquor, and is consequently a by-product of some value, before the liquor enters the stills, has been described.

The two most practical processes seem to be the bacterial filter and the weak-liquor extraction process. The lower installation costs, the less ground space required, and the possibilities for revenue from the recovered phenols render the second process highly promising for many plants.

On the basis of the facts at hand, and for the larger plants, the second process could well be used to remove the greater portion (say 80 to 90 per cent) of the phenols from "weak liquor" and where necessary the remainder could be removed from the still-waste by a bacterial filter. With only the last small portion of phenols to be removed, the great dilution of that still waste would be unnecessary and the necessary filter capacity would be greatly reduced. The meaning of these reductions in terms of costs is self-evident.

This partly purified still-waste containing only 10 to 20 per cent of its full phenol content could be treated in considerable proportions along with city sewage where such plants were available.

In small plants and in those where ground space is not a serious item, the bacterial filter may be desirable and prove better economically.

In the last analysis, economic factors alone will evaluate these two and future processes. Those economic factors will be definitely known only when large-scale operation and accurate cost data are available.

ACKNOWLEDGMENTS

In addition to the officials and engineers of the National Tube Company, previously credited, the writer is indebted to F. W. Sperr, Jr., director of research, The Koppers Company, of Pittsburgh, Pa., and to D. W. Wilson, chemical engineer to the Iroquois Gas Corporation of Buffalo, N. Y., for suggestions and information which have been incorporated into this paper. Acknowledgment is likewise gladly made to R. D. Leitch, associate chemist of the U. S. Bureau of Mines for information made available and the use of his excellent bibliography which appeared in the U. S. Public Health Reports for September 1, 1925.

AUTHOR'S NOTE

Since this review was completed in December, 1925, there has been made public further details in the development of the general process of removing phenols from weak liquor instead of from the ammonia still waste liquor. The attention of the reader is therefore directed to an article by R. M. Crawford which appeared in the *Journal of the American Chemical Society*, March, 1926, page 313, and in *Blast Furnace and Steel Plant*, March 1926, page 112.

CORROSION

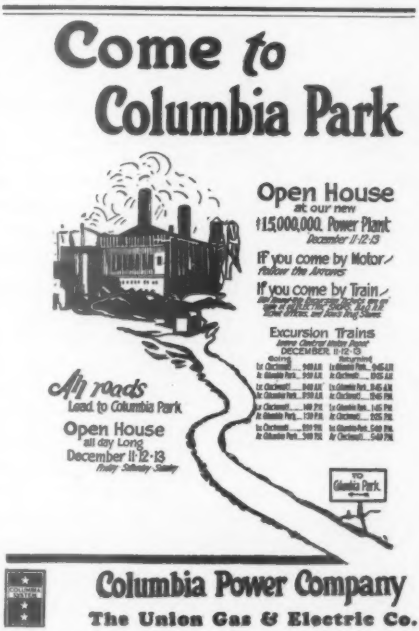
"CORROSION: Causes and Prevention—An Engineering Problem," is the title of a book by Dr. Frank M. Speller, director of metallurgical department, National Tube Company, that is to be published shortly by the McGraw-Hill Book Company.

We Got 30,000 People to Visit Our New Plant

Newspaper Space, Outdoor Advertising and Some of Belasco's Tricks Were Used to Derive Profit from a Formal Dedication

By HARRY MERRILL HITCHCOCK, Publicity Manager, Columbia Gas & Electric Company

ALMOST every business goes through the more or less formal dedication of an important new unit—a new factory, a new warehouse, office building or store. Everybody recognizes such an occasion, although perhaps rather vaguely, as a fine opportunity to do a little crowing, to call your achievement to the attention of your customers and your own home town, to pat yourself on the back and perhaps succeed in making the patting not only pleasant but profitable.



Mr. Hitchcock tells how the dedication of a power plant was dramatized to gain public interest. There is important information in this article for every gas man interested in advertising.

The trouble is that nearly everybody starts out on these occasions without any previous experience to act as a guide, and with, consequently, no more than the vaguest ideas regarding what to do, how to do it, how much to spend on it, or what results should reasonably be expected.

Having just passed successfully through the storm centre of such a dedication, and one of impressive dimensions, the thought has occurred to me that it might be an interesting job to put our experience on record, and that from this report somebody else, somewhere, who has a new plant to be dedicated in the near future, might profitably reap some suggestions both as to things to include his own program and things to avoid.

The first thought—the one which originally occurred to us when we set out to plan our dedication, and the one which, in retrospect, most amply justified itself in the event—is this: That while you have here what should and can be made a standard advertising job, it is one in which what are usually regarded as standard advertising methods have only a secondary part to play; that in fact, your opportunity is neither literary nor pictorial, but dramatic. To evolve a satisfactory technique, you have to study, not the arts of literature or design, but the art of the theatre.

Now for the working out of this idea.

From Printer's Ink.

The occasion was the dedication of the new Columbia Power Station, at the confluence of the Big Miami and Ohio rivers, in the extreme southwestern corner of Ohio, about twenty miles from the heart of Cincinnati, and five miles outside the city limits. This station was built and is operated by the Columbia System.

What we really set out to accomplish, therefore, in the dedication of the new plant, was to dramatize electric service for the people of all these communities. We started with the premise that very few people realize the extent to which dependence upon central station service is becoming the universal rule of daily life, and that it was our job to bring this fact home to our own million or so of customers in a way that would appeal to their imaginations and so help us to increase our usefulness to them still further.

Now, in case somebody should suggest that we had an easy job compared with that of dramatizing a new grocery store or service station, it may be in order to inform you that there are very few institutions less dramatic to the eye, under ordinary circumstances, than a modern power station.

A grocery store, if you really set out to uncover the stories of strange lands that stretch out behind every other package on its shelves, fairly reeks with drama. But a modern power station! The orderly neatness of its bare interior would put a Dutch village to shame; scarcely any moving machinery is visible; even the boilers are fired by machinery and the most you get is a glimpse of flame through a peep-hole, while the few men on duty are seldom seen to do anything except look at a gauge-dial and turn a valve-wheel a fraction of an inch. Engineers, in fact, have an instinctive horror of drama—its appearance is usually a sign that something has gone wrong.

However, having made up our minds that drama was needed, we pondered the matter. We sought for some analogous ceremonial, and presently found one—that of launching a big ship.

There you have drama at its highest point: Suspense; uncertainty; a hint of danger and of forces let loose; and by age-old tradition, human interest is caught and held by giving the most prominent role in the unloosing of this power to a young girl. What more effective contrast could be devised?

We could not push our analogy too far; we had no desire to send our new plant sliding majestically down into the Ohio, but we decided that the high point of our drama would be the moment when a young girl—the daughter of the designing engineer—would for the first time open the throttle, turning on steam and starting one of our gigantic turbines.

Having made up our minds on this point, Belasco, himself, never built up a scene with more care. We had, in fact, one great advantage over Belasco, in that we were able to hand-pick our "first-night" audience—the 600 or so especially invited guests who witnessed the actual ceremony of dedication. But we accepted, and followed, whole heartedly, the dictum of the successful theatrical producer by lavishing almost infinite pains upon the details of our stage-setting.

There were scores of these details, each contributing its mite to the success of the whole, and each chosen for its dramatic value; the design of brassards for guides and pennants for the motor-cars which brought the president and directors, with their personal guests, to the scene; the signs, with arrows pointing to "Columbia Park" on all the roads west of Cincinnati — all these and other touches contributed to capture the attention of spectator and passerby alike, and deepen the feeling that an important and thrilling event was impending.

We also advertised our "show" rather more persistently and more conspicuously than the usual theatrical manager. But then, we also got on admirably without any help from the usual reliance of

the theatrical managers—the press agent. This was the only point in which we departed entirely from the theatrical technique. But we are not sorry.

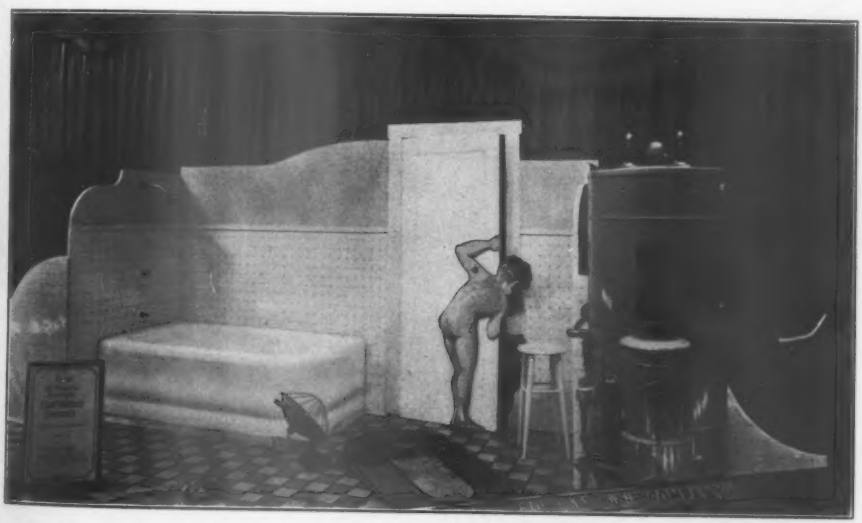
We had commenced our carefully laid-out program of advertising about two weeks in advance of the actual dedication day, using simple, poster-like advertising in all newspapers, combined with the use of actual "three-sheet" posters which were set up on easels in all public or semi-public places in Cincinnati, the largest and most central city of our territory. As every department store, hotel and theatre in the city is a customer of ours, we had little difficulty in securing their co-operation in this. We also distributed several hundred smaller replicas of the poster as a window card.

Furthermore, we published two different small "hand-out" folders, one telling how to get to Columbia Park, and the other describing interestingly, not only the new power station and what visitors were to see there, but also several of the interesting historic and scenic features of the site. These were distributed broadcast through our territory. Together they gave what might be called the "scenario" of our drama.

During the week of the actual dedication day two of the Cincinnati newspapers published large and elaborate special sections commemorating the opening of the new station, and, in addition to this, the week was marked by another feature which, for the first time, gave us a definite indication of the manner in which our "show" had "caught on." This was the publication of some very large and striking advertisements by some of Cincinnati's other prominent commercial institutions, congratulating us upon the completion of Columbia Station.

We had laid out our program as a four-day affair. The first day, Thursday, was to be the day of the formal dedication before invited guests. Incidentally, another advance indication of the success of the "show" was the scramble for invitations, which provided considerable last-minute embarrassment. This day was to close with a banquet, which was one of the most distinguished gatherings ever held in Cincinnati.

(Continued on page 314)



A Window Display Designed by S. C. Reiser of the Laclede Gas Light Company, St. Louis, Mo., to SELL Automatic Storage Water Heaters

Advertising Money Should Not Be Wasted

By FRANK L. BLANCHARD,
Manager, Advertising and News Dept.,
Henry L. Doherty & Co.

THE advertising manager of a public utility company is the target of salesmen representing many different mediums, good, bad and indifferent. Unless he is watchful he will be induced to spend more money than his budget appropriation allows. The most of the representatives of mediums and schemes are high powered salesmen and can sing a siren's song in a most persuasive manner. If the manager confines his advertising to local daily and weekly newspapers and other tested mediums, he will not incur the criticism of the treasurer or general manager of the company. When asked to take space in programs for political, social or religious societies or organizations, he should refuse because they are worthless as advertising mediums. If, for good and sufficient reasons, it is desirable to help along the cause, give a contribution but do not charge it to the advertising account. If you should take space in one program and not in others, you will arouse the enmity of the clubs or associations whose request you have turned down. If you should advertise in all of them, the amount spent, except in small communities, would make a big dent in your appropriations.

Functions of the Controller

(Continued from page 301)

which should be called to the attention of the president, or manager, or board of directors of the business.

13. The budget has been increasingly applied to modern business. The operation of such budgets frequently rests with the controller, and so his functions have in this extent been greatly enlarged.

This statement is followed by a discussion of the relation of the controller to the treasurer in which he sets forth clearly the opinion that the controller's duties should be segregated from those of the treasurer. "One should be a check upon the other, and under no condition should one of them be subordinated to the other. The treasurer is the chief custodian and disbursing officer of the funds and handles all the company's financial requirements, which in a great number of companies is a big undertaking in itself. Meantime the controller is left free to serve as a check upon an auditor of funds received and disbursed by the treasurer, and to develop that analytical reading of events, both within and without, which is so essential to large scale undertakings."

Gas Company Adopts Old Greek Custom

THE Grecian custom of carrying fire from the homeland to the colonies has been carried out by the Consolidated Gas Company of New York for a century. From a coal fire started in 1823, heat is now furnished for the manufacture of gas in New York City.

Every time a new plant for making gas is opened, no matter how great the distance, hot coals are removed from the nearest established plant to start the fires in the new ovens. The Greeks used runners to transfer the fires from the homeland. Modern invention has relegated Mercury and Nurmi to the running track, and now the coals of fire are transferred by means of automobile trucks.

The first manufacturing plant in New York was that of the New York Light Company, which was merged with the Consolidated Gas Company years ago. The first plant was at Canal Street. At that time gas was made from rosin, wood or whaleoil and sold for ten dollars a thousand cubic feet. Every plant the Consolidated has opened since that time has been fired with coals brought from old plants. The tradition will always be carried out, according to officials of the company.

THIS IS FAME, INDEED

POLAND has heard of the publications through which the Pacific Gas and Electric Corporation keeps its consumers and investors thoroughly informed as to its business and development plans. Tadeusz Skarzynski, who is lecturing in the High Commercial School in Warsaw, recently wrote to the company for copies of *P. G. and E. Progress* and the *Pacific Service Magazine*, saying he wished to show them to his classes as samples of American publicity mediums.

MANUFACTURERS SECTION
WATSON E. DERWENT, Chairman W. E. STEINWEDELL, Vice-Chairman
C. W. BERGHORN, Secretary

Ample Space Will Be Available for the Exhibition at the Annual Convention

An Increase of Fifty Per Cent in Space Will Prevent the Crowded Conditions of Last Year

THE announcement that the Annual Convention of the American Gas Association will be held on the Million Dollar Pier at Atlantic City, N. J., instead of the Steel Pier has been favorably received by the manufacturer members of the Association. For the first time there will be ample space available for exhibition purposes.

Since there will be an increase of fifty per cent in the space over last year, the crowded conditions of the last two conventions will be mere memories. In 1924 28,300 sq.ft. of space was used, and in 1925, 33,500 sq.ft. was contracted for. The 50,000 sq.ft. at the Million Dollar Pier will be ample to take care of the growing number of exhibitors and the ever-increasing demands for space.

The growth in the number of exhibitors at the A. G. A. Conventions is given in the following figures: In 1919 there were 110 exhibitors; in 1920, 110; in 1921, 112; in 1922, 135; in 1923, 165; in 1924, 182, and in 1925, 208.

It was apparent that more space for the exhibition was needed. The renting of the Million Dollar Pier was, therefore, the only solution. That there will be demands for the space available is shown by the large number of inquiries already received.

The article on page 259 of THE MONTHLY tells the many advantages of the Million Dollar Pier.

FEE FOR RANGE TESTS

THE EXECUTIVE BOARD has voted that the fee for testing gas ranges at the Laboratory will be $200, and $100 for retests. This is for members only.

The fee for a test on a range manufactured by a non-member of the Association is $300.

A Partial View of an Exhibit That Was Held Recently on the Million Dollar Pier at Atlantic City, N. J.

Are We Peculiar?

(Continued from page 269)

cities is on a three-part basis, as follows:

1. An operating charge of 40 cents per mile; plus—2. An additional charge of 20 cents for each additional passenger; plus—3. A waiting charge of $1.50 or $2.00 per hour.

The rate for a one-mile ride would be 40 cents.

The rate for a one-hour wait plus a one-mile ride would be $2.40. And just what would the rates be if the taxi companies were forced to render good service in stormy weather?

H. The Automobile Business.

When you buy an automobile you pay for three things: 1. Convenience. A superior method of transportation. 2. Speed. High-powered cars cost more, even if you never have use for the extra power. 3. Mileage. The running expenses due to gasoline, oil, tires, etc.

Your auto dealer will tell you your car should cost a certain figure per mile for all expenses and overheads but he would not think of selling you the car on a per mile basis. The interest and depreciation charges on the money you have invested mount up even if your car stays in the garage. You pay for power even if you never have use for it. The only charges proportional to the mileage are the running expenses of gasoline, oil, tires, etc.

Similarly, under the three-part rate, the gas consumer pays for:

1. Convenience. A superior method of cooking or heating made possible by the extensive distribution system on which the customers are asked to pay part of the fixed charges as a customer charge.

2. Speed and Power. The amount of gas that will be required at any one time. Customers with high-powered appliances, meters and mains pay a higher speed charge.

3. Fuel. The bare cost of producing the gas is covered by the commodity charge, similar to the gasoline, oil and tire expense of the automobile.

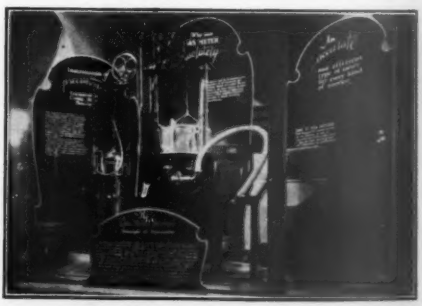
When we investigate we find that if we are peculiar, the peculiarity lies in our continuing to struggle along with meter rates. If any other line of business were asked to render the kind of service demanded of us, it would be forced to change its rate methods or go out of business. We are also peculiar in that we fail to see that our neglect of the ultimate good of our customers is bound to react to our own detriment.

REGARDING REPRINTS

ONCE AGAIN we wish to remind our contributors and readers that reprints of any material published in the American Gas Association MONTHLY may be obtained in accordance with the following scale:

100 copies, 1 page	$2.00
Additional 100's	.40
100 copies, 2 pages	3.00
Additional 100's	.40
100 copies, 4 pages	7.00
Additional 100's	.75
100 copies, 8 pages	10.75
Additional 100's	1.05

These copies cover only actual printing costs. Reprints can be made according to this scale only if orders are received while material is still in type. Prompt action is, therefore, essential. Under any circumstances, permission of the author must be obtained before reprints can be made.



The Pacific Gas and Electric Company Believes in Educational Window Displays. This One, Telling of the Gas Meter Prover, Was Especially Successful.

The Palms Tourist Camp, Los Angeles, Calif.

The Wandering Automobilist Appreciates Gas for Cooking and Heating

Gas Equipment Helps to Make Life in the Auto Camps Pleasant

By R. E. RAMSAY, Advertising Agent, Los Angeles Gas & Electric Corporation

LOS ANGELES, receiving its share of the influx of people into Southern California, is well supplied with auto camps. In most instances, those who patronize the camps desire to remain merely for a brief stay and then they are on their way. Nevertheless, quite a number of new arrivals remain indefinitely in their auto camp homes until they find work and a permanent home to go to.

The Health Department of the City of Los Angeles requires the registration, for inspection purposes, of all auto camps operating within the City Limits. A short time ago the Department's records showed nearly two dozen camps thus registered, over a third of which are located on the gas lines of Los Angeles Gas and Electric Corporation.

The use of gas in these camps varies, of course, with the size of the camp and the amount of gas equipment it supplies for its patrons. During the twelve months of 1925 the amount of gas used by individual camps which this corporation supplies ranged from about seventy thousand cubic feet for the smallest consumer to well over a million cubic feet for the largest.

The demands for gas fluctuate, also, with the time of year. It is heaviest in the winter. One might think the summer would be the time of greatest gas consumption in auto camps because that period is the greatest for tourist activity. In California, however, people travel by motor all the year round, and, in addition, gas is practically the only fuel used for doing whatever heating may be necessary during the colder periods.

These auto camps are all more or less alike in the general service rendered. They vary mostly in size, desirability of location, conveniences, supplies, and degree of comfort afforded.

The Palms Tourist Camp, a picture of which accompanies this article, is a good example of a well-equipped auto camp which uses gas to supply many of the conveniences it offers its guests. Having a total of nine acres within its boundaries, this camp has sixty-three cottages of one-, two- and three-room sizes, giving a total capacity of seventy-five families that can be accommodated at one time. The two- and three-room cottages are equipped with kitchenettes, and there are three public kitchens for the use of those occupying the one-room cottages. All

One of the Smaller Auto Camps Served With Gas

cottages are supplied with hot and cold water. Launderies and hot shower baths are also provided at central points for the convenience of guests. A grocery store, an auto repair garage and wash rack, all located within the camp, afford additional conveniences for patrons. The large area of the camp and the nature of the location provide space for children's playgrounds and for sports of various kinds. In addition, the camp has social rooms for music, games and dancing.

The City of Los Angeles maintains a tourist auto camp, also, but those patronizing it must provide their own tents or other shelter, there being no cottages. The conveniences provided, for a very small sum, are quite complete. Gas is used for hot plates, laundry plates, heating water for shower baths, etc., and in the kitchens.

Most of these auto camps appear to be well patronized; in fact, some of them are contemplating adding more cottages and improving their conveniences. This fact, coupled with the certainty that there is doubtless no place more sought by tourists than Southern California, would indicate that the use of gas and gas appliances by auto camps in this territory ought not to grow less as time goes on.

Gross and Net Heating Values

(Continued from page 289)

the average flue products mixture are given below:

Press in Atmos.	Temp.	Latent Heat B.t.u. per Lb.
0.223	145°	1010.3
0.197	140°	1013.1
0.172	135°	1016.0
0.151	130°	1018.8
0.132	125°	1021.6
0.115	120°	1024.4
0.100	115°	1027.2
0.087	110°	1030.0
0.075	105°	1032.8
0.064	100°	1035.6

Take the retort coal gas just considered and assume the flue products cooled to 117° at which half the water vapor has been condensed.

	Volume	Sp. Ht. at 117°	Ht. Content
CO_2	.503 cu.ft.	x .0237 x (117—60) =	.68
H_2O	1.208 cu.ft.	x .0223 x (117—60) =	1.53
N_2	3.991 cu.ft.	x .0179 x (117—60) =	4.07
			6.28 B.t.u.

These 6.3 B.t.u. represent the sensible heat in the flue products from 60° to 117° and must be deducted from the net heat as shown below.

When half the water vapor has condensed, half of the difference between gross and net values will have been recovered. The heat available from the perfect combustion of 1 cu.ft. of retort coal gas when the products are cooled to 117° will be

510 B.t.u. (net value) — 6.3 B.t.u. + 30 B.t.u. = 533.7 B.t.u. recovered.

There seems to be a difference of opinion whether the net or the gross heating value should be used and for that reason we find both values used. According to the most widely accepted practice, the gross B.t.u. value of the gas should be employed in calculating efficiencies even though it is recognized that the latent heat is seldom, if ever, rendered useful since in most heating operations the flue gases leave the appliance at temperatures well above the condensation point. The net value is the one used in calculating heat balances, flame temperatures, etc. In any event the value used should be correctly indicated.

When comparing the B.t.u. values given by different authorities considerable variation will be noted. There still remains much work to be done in this field before the B.t.u. values can be accepted as final.

Thirty-Six Demonstration Houses to Show Adequate Gas Equipment

Cooperation Is Asked of Local Companies as Blue Star Campaign Gets Under Way

WHY THE BLUE STAR?

THE symbol to be used for the adequately gas-equipped home and for the quality appliances installed therein has been changed to the Blue Star (instead of the Orange Star). This change was made for two reasons; the Commercial Section Managing Committee felt that blue more nearly symbolized the gas flame and, hence, the gas industry, and there was also some question as to the copyright protection of an orange star.

AS a part of the national sales program of the Commercial Section (known as the Blue Star Campaign) arrangements have been completed for the adequate equipment of thirty-six model demonstration homes with proper gas piping, flues and appliances during 1926.

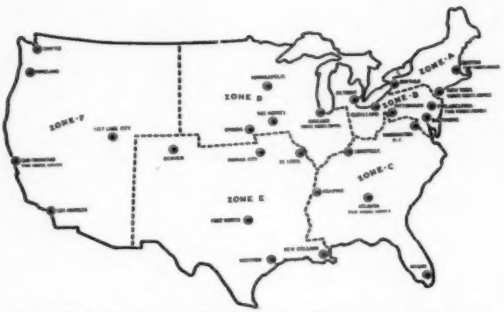
The A. G. A. has joined with twenty-five or more other associations and manufacturers of building materials and equipment in a co-operative campaign sponsored by the Home Owners Service Institute which will build, demonstrate, advertise and give publicity to these model homes. These houses are to be erected in twenty-eight of the larger cities of this country as follows: Boston, 2; New York, 3; Philadelphia, 2; Baltimore, 1; Washington, D. C., 1; Atlanta, 2; Miami, 1; Buffalo, 1; Pittsburgh, 1; Detroit, 1; Cleveland, 1; Louisville, 1; Memphis, 1; New Orleans, 1; Houston, 1; Chicago, 3; St. Louis, 1; Fort Worth, 1; Minneapolis, 1; Des Moines, 1; Omaha, 1; Kansas City, 1; Denver, 1; Salt Lake City, 1; Seattle, 1; Portland, 1; San Francisco, 2; Los Angeles, 1.

The plans and specifications for these model homes have been submitted to the A. G. A., and in co-operation with the architect of the Institute, the layout of piping and flues, the location of outlets and other details of gas equipment have been carefully drawn up and agreed upon.

These homes are to be exploited through a national advertising campaign in consumer magazines, by syndicated publicity pages in newspapers, by local advertising and other means which will interest prospective and present home owners throughout the country in these demonstration houses. At least one hundred thousand dollars will be used in this way.

As the Home Owners' Service Institute has unusual facilities for securing publicity for this program, we are sure that this will be a big step toward the aim of educating the public in providing adequate gas equipment in their homes.

The particularly important feature of this part of the Blue Star campaign is the opportunity offered to the gas companies in these cities to participate in the program. The co-operation of the gas company will consist of loaning the necessary gas appliances for the home, installing these appliances, distributing publicity and advertising material supplied by the Institute, placing a demonstration in the home during its exhibition, and carrying on such further advertising on its own account as it may decide to use. The Blue Star Sign may be placed upon each of these houses, at the discre-



The Twenty-eight Large Cities Where Thirty-six Model Homes Will Be Demonstrated

tion of the gas company—the symbol adopted as the sign of a modern gas-equipped home having quality gas appliances.

In each of these cities, the realtor who builds the model home will be bonded to construct nine other houses on his own responsibility, following the plans of the original homes and, as far as possible, the specifications laid down. As it is impossible for the Institute to guarantee that the gas equipment specifications will be followed to the letter in these supplementary homes, the local gas company will follow up this part of the campaign on its own initiative to secure the builder's co-operation in regard to installing adequate gas service. At the maximum, therefore, three hundred and sixty Blue Star homes may be built this year in the twenty-eight cities if the gas company will take an active part in local effort.

However, this Home Owners' Service Institute program is not the entire Blue Star plan for the current year. A suitably modified program has been prepared by the Commercial Section to be operated in smaller cities and towns. This phase of the plan has some additional and highly valuable features not feasible in the larger communities, such as developing the co-operation of plumbers and dealers, the distribution of specially prepared booklets devoted entirely to gas as a household fuel, and so forth, as has been set forth in previous announcements by the A. G. A.

As both parts of this campaign are now under way and the Association's facilities for organizing the smaller community campaigns are limited, we urge all gas companies who are seriously interested in participating in the Blue Star program to advise the Commercial Section at once.

Sales Stimulation Service Stopped

THE Commercial Section has announced that the Sales Stimulation Service, which has been published during the past two years, will be discontinued. The current issue will be the last.

The Section will, however, continue to issue sales bulletins on regular schedule. It will be distributed to member companies free of charge. The Home Service News will be continued in the new service.

A. DEANE DOWELL
The Newly Appointed Home Service Counsellor of the American Gas Association.

The Group That Attended the Conference at Gloucester, Mass., Last Year

More Regional Sales Conferences

FACTS ABOUT THE 1925 SALES CONFERENCES

Total Attendance 325
Number of Speakers 46
Dates: New York, May 26 to 29, 1925
New England, June 2 to 5, 1925.
Places: Lake Mohonk, N. Y., and Gloucester, Mass.

THE success of the Regional Sales Conferences held last year by the Commercial Section at Lake Mohonk, N. Y., and Gloucester, Mass., has led to a demand for their repetition this year. At its meeting in Chicago on March 16, the Managing Committee voted to repeat the New York and New England meetings and to add a third, if desired, in the central region.

The New York Regional Council immediately took steps to organize their Conference, and the date has been definitely set for June 3, 4, and 5 at Lake Mohonk, as before. Program, entertainment and transportation committees have been appointed and are now actively at work in an endeavor to beat the high record of helpfulness, pleasure and attendance set last year.

The Gas Sales Association of New England, which acts as the Regional Council in that territory, was not to be outdone by its New York brother, and has begun work on the New England meeting, details of which will be available by the time this issue of the MONTHLY is in the mails. The New England meeting will be a two-day meeting, instead of the four of last year in both cases, and the signs already point to a larger continuous attendance in 1926 than at last year's meeting which was the first of these for New England. The tentative date that has been set is June 11 and the place is Gloucester again, provided hotel accommodations can be arranged. Further announcement regarding these meetings will be made by letter to members.

The question of a Mid-Western meeting has just recently been taken under consideration by the executives of gas companies in that region who will necessarily send the largest number of representatives, and no decision as to its advisability has been reached up to the time of going to press. Doubtless this meeting, if held, will be later than the two others.

CASE SCHOOL WORKS ON COMBUSTION PROBLEMS

ARRANGEMENTS have been made with the Case School of Applied Science, Cleveland, Ohio, by which three seniors are working on gas combustion problems, outlined by the Laboratory, and doing part of the work in connection therewith at the Laboratory.

How We Got 30,000 People to Visit Our Plant

(Continued from page 305)

Despite the impossibility of a complete dress rehearsal the performance went off, thanks to our preliminary agonies, as smoothly as a wedding among the 400.

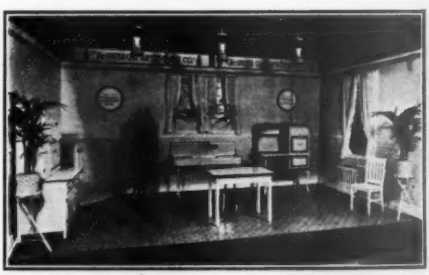
The special train bringing the official party from New York arrived on time; the motor parade through the city and down to the station was witnessed by throngs and greeted with cheers (even if most of them were furnished by the ubiquitous small boy); the invited guests were escorted into the turbine room; then, in impressive silence, our "sponsor" and her party entered; flashlights boomed and cameras clicked and the news movie cranks ground furiously.

The following day we entertained, as guests at the new station, some 3000 high school, college and university students, together with a scattering of public visitors. This was Friday; Saturday and Sunday the station was open to the general public. Saturday we had some 4000 visitors (this was in the midst of the final Christmas-shopping rush) and then on Sunday came the deluge.

We had hoped, vaguely, to have 10,000 to 15,000 visitors during the three public days, but we had been too innocent and inexperienced impresarios to study the physical limitations of our theatre—to figure the actual number of motor cars which could move in one day over the roads leading to the plant, or be parked there long enough to allow their passengers to walk through the building; the actual number of people who could be carried down to Columbia Park or away from it on our special trains in a day; even the actual number of people who could safely be packed into the station or moved through it at one time.

Fairly early, that Sunday afternoon, we had to send out guides, carrying notice-boards hastily painted on the spot, announcing that no more visitors could possibly be accommodated. We sent scouts out along all the roads, some of them as far as four miles away, to beg all and sundry please to abandon their idea of visiting Columbia Park, because there was no possible chance of their even getting within sight of the plant, so great was the congestion. The solid masses of motors, moving at snail's pace, extended on some roads for five miles without a break. On this one Sunday, over 12,000 people, by actual count, inspected the station, and at least as many more, on the lowest possible estimate, were turned away without doing more than getting within sight of the building. It is safe to say at least 25,000 Cincinnatians, on this one December day, turned out to ride or drive twenty miles or more to see that fundamentally undramatic thing, a modern power plant. Futhermore, when we re-opened the station to the public the following Sunday, for the benefit of the disappointed, 5000 of them returned and actually went through the building on that occasion.

What is more, every comment overheard indicated that all of them felt that their visit had been wonderfully worth while, and that there are impressive dramatic values even in a power plant—if somebody takes the trouble to find them and point them out.



Why Was This a Prize-Winning Booth at a Recent Home Builders' Exhibition in Philadelphia? The Answer Is That It Would Be a Prize-Winning Kitchen in Any Home.

TECHNICAL SECTION
JOSEPH P. HAFTENKAMP, Chairman WALTER C. BECKJORD, Vice-Chairman
H. W. HARTMAN, Secretary

Electricity and Air Restore Gas Service

How a Stopped Gas Main Was Cleaned of Tar with a Minimum Effort

By M. A. HARD, Engineering Dept., Burlington Light & Power Co., Burlington, Vermont

A RATHER unique and effective method of removing deposits from gas mains was employed here recently to remove a stoppage in one of our high pressure lines.

Winooski, Vt., a city of six thousand inhabitants, is served by a low pressure distribution system supplied through a three-inch high pressure main from the Burlington Gas Plant, over three miles distant. About ten o'clock on the morning of January 2nd the office began to receive numerous "no gas" calls from this district. An examination at the governor house showed the line to be partially stopped as there was no pressure at the inlet to the governor with a pressure of forty-five pounds at the plant. Our first conclusion was that the only drip on the line, located about fifteen hundred feet from the plant, was full and when the pumping of this failed to remedy the situation we were sure of a freeze-up as we had had some extremely cold weather immediately preceding this trouble. Various theories were advanced by everyone. The only thing we could agree upon was that it had to be remedied quickly as we had an entire community completely out of gas when it was needed most — during meal time. It might be added here that except during peak load we were able to maintain good gas pressure in Winooski through a tie-in with Burlington's low pressure distribution system.

M. A. Hard

The line was uncovered at various points, tapped and fitted with risers. When the tap was made at the corner of Elmwood Avenue and Pearl Street, the mystery was solved. At this point it was one-third full of solidified tar, the hardness of which resisted penetration with a knife. By installing pressure gauges at each of the openings we found the obstruction to be between this point and the corner of Pine and Pearl Streets. This gave us about seven hundred feet of main, one-half way between the plant and the governor house, to work on. Incidentally, this seven hundred feet was in a new asphalt street, laid last year, and to have opened it would have meant criticism from the city officials and the public.

Up to then we had been using gas under pressure from the plant to test with, but at this time the valve on the line at the plant and also the valve on the inlet to the governor three miles away

was closed which gave us a cylinder three inches in diameter, three miles long, stopped at both ends to work on.

A bank of A. C. transformers was set up between the two points mentioned and an electrical current of four hundred amperes at two hundred and twenty volts applied to the pipe along with an air pressure of eighty pounds per square inch from a portable compressor. In less than an hour under this treatment the riser at the lower end commenced to emit a string of tarry matter which had evidently been warmed just enough to provide a sliding medium under this pressure. The pipe was then cut at this point, a section removed and the same treatment applied. During several hours a total volume of solid matter equal to approximately one-third of the total volume of the seven-hundred-foot section was discharged from the pipe at various intervals. Some pieces of solid matter fifteen feet in length and equal in diameter to the size of the pipe were blown out.

We had a chemical analysis made of this substance and the following is the result of this test covering contents:

Water and light oil driven off @ 105° C.	27.6%
Heavy oils and tarry matter soluble in carbon bisulphide	21.0%
Gummy substance soluble in ethyl alcohol	35.4%
Iron oxide	9.6%
Total sulphur	3.7%

After assuring ourselves that the pipe was completely clear, the line was repaired, tested, purged and put into operation. The cut-off on the riser in front of the governor house was open and gas allowed to pass into the line by opening the valve at the plant. We pumped gas in through this line and allowed it to escape with the air through this riser long enough to assure ourselves that there was pure gas coming through the line. The effects of the cleaning were soon noticed at the governor house in increased pressure and reserve during the peak load.

When this high pressure line was laid over twenty years ago, no attention was given to grading the pipe. We concluded that the stopped section was a trap where there occurred a gradual accumulation of deposit. This particular section also has two short radius ninety degree fittings which probably increased the precipitation of tarry particles from the gas. Without the simultaneous application of heat and pressure we doubt if the main could have been cleared except by working on much shorter sections which, as stated previously, we wished to avoid on account of the newly paved street.

BAKERS USE GAS

THAT the trend is towards the use of manufactured gas for industrial purposes is proven by the following figures made public by the American Gas Association.

Based on the 1920 census figures and brought up to date by yearly statistics since then, the baking industry in the United States pays a total bill for five major fuels of $18,158,150, not including miscellaneous fuels that cost less than $500,000 altogether.

The fuels used and the amounts paid are: anthracite coal, $5,970,000; gas, $5,250,000; bituminous coal, $3,607,500; coke, $2,632,450; oil, $698,200. The total amount paid for electricity, wood and other fuels was less than one-half million dollars.

Water Gas Committee Has Educational Service

AMONG the many reasons why the American Gas Association has attained such prominence during the past few years is the fact that the various committees do not function as dead committees, but as live affairs, not for a few weeks or days at the time of the annual convention in October, but throughout the year.

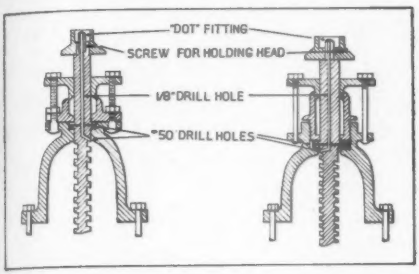
The Water Gas Committee is composed of the foremost engineers of that particular branch of the industry in the country. There is a sub-committee known as the Educational Section which is available to operators at all times. This Section is in a position to answer or to obtain answers and give the latest information on any phase of this particular branch of the industry.

If there are problems bothering any operator, it is suggested that he get in touch with H. W. Hartman, secretary of the Technical Section, who will forward the questions to the proper authority for answer.

Prompt, careful, and confidential treatment will be accorded all questions sent in.

Lubricating the Stem Of a Gate Valve

By J. D. SHATTUCK
General Manager, Philadelphia Suburban Gas and Electric Co., Chester, Pa.



Sketch Showing Method of Lubricating Valve Stem

IN the March issue of THE MONTHLY there appeared an illustration and description of how to lubricate gate valves. We have also had called to our attention from time to time various lubricated plug valves. Here is a method of lubricating the stem of a gate valve that we have used on high pressure valves for the past year and are now specifying it on all gate valves.

Formerly we drilled the valve stems well down into the thread portion of the stem with three side outlets for oil. By using a 600 oil, one hole at top of thread is all that is necessary and thread portion of the stem is not weakened.

Our experience has been that if the thread of the valve stem is well lubricated the valve operates easily and can be made to hold when closed. If the valve is operated once or twice a year with lubricated stem, there is no trouble in making it hold tight. Old valves that have been in use a number of years were first operated by tapping the bonnet, as shown in the illustration on page 190 of the March issue of THE MONTHLY referred to, and a penetrating oil introduced. Valves were then closed, stuffing-box and stem removed and the drilled bronze stem substituted. After this substitution there has been no difficulty in operating these valves successfully.

The trouble with the ordinary unlubricated gate valve is that any binding of the stem whatever increases the difficulty of operating the valve. In the past we have seen many valves operated by two men on the valve key with a piece of pipe on the end of the key and oftentimes the stems were twisted off without moving the gate. This was entirely due to friction in the stem itself. The objections to the various lubricated plug valves are that they do leak a little sometimes. I would rather have a valve that is entirely dependable.

The two sketches show the screw stuffing-box and the bolted stuffing-box. On the smaller size valves we specify the screw type of stuffing-box.

NEW HOUSE ORGANS APPEAR

THE MONTHLY takes this opportunity to extend its good wishes to two new house organs. The Madison Gas and Electric Company, Madison, Wisc., is now publishing the *M. G. & E. News*. F. W. Huels is the editor. The Wisconsin Power and Light Company, also of Madison, Wisc., is issuing the *Power and Light News*, under the direction of G. V. Vaughn, director of publicity.

House organs have important places in the gas business, and the fact that two more companies have seen the need for such publications is gratifying. The list of companies publishing such magazines is a large one. The quality of the papers is high, and the work that is done would probably never be attempted if it were not for these magazines.

CORRECTION

THE FIRST SENTENCE in the first paragraph of the article entitled "Unapproved Gas Tubing Usually Hazardous," by R. M. Connor in the April issue should have read as follows: "Reports received by the Association indicate that more than one-third of the asphyxiation accidents, due to defective appliances, involve the use of poor tubing."

Unique Application for Membership

THE New South Wales Commercial Gas Association, Sidney, Australia, has asked for affiliation with the American Gas Association through its secretary, A. E. Hutchinson. The A. G. A. has placed the Australian organization on its mailing list to receive copies of all booklets and papers of interest.

The decision of the A. G. A. Committee on Geographic Divisions was that affiliation on the ordinary basis would be impracticable, as such affiliation rests largely on the interchange of committee members.

A. G. A. OPERATING SERVICE BUREAU

The American Gas Association has instituted an operating service bureau through the Carbonization Committee. This bureau has not been used by the members to the extent that its potential value would indicate it should have been.

A sub-committee has been appointed to handle this bureau. The committee is composed of men with wide experience in operation of all types of plants and are, therefore, in position to give helpful information on all operating conditions. The committee intends to call on any one whom they feel can aid them in any problem.

The committee urges all members of the Association who have some problem giving concern to refer it to this committee who will endeavor to answer or find some one who can give the information desired.

All communications will be held strictly confidential and no information given as to the source of any question.

Let this committee share your troubles. Mail to H. W. Hartman, Secretary of Technical Section, who will forward them to the committee.

DID YOU GET YOURS?

THE CLASSIFIED DIRECTORY of Manufacturers of Gas Equipment and Appliances which accompanied the April issue of the MONTHLY represents a service of considerable value to our manufacturer members.

The Directory, however, can only be of maximum use if the information carried therein is reliable. Our members are, therefore, urged to furnish headquarters with all information pertinent to and of a nature to be included in this pamphlet.

To derive the full benefit from the Directory our manufacturer members should furnish us with a complete list of their products and trade names of interest to the gas industry.

Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of Aug. 24, 1912

Of American Gas Association MONTHLY, published monthly at Brattleboro, Vermont, for April 1, 1926, State of New York, County of New York, ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Howard F. Weeks, who, having been duly sworn according to law, deposes and says that he is the Editor of the American Gas Association MONTHLY and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Gas Association, Inc., 342 Madison Ave., New York, N. Y. Editor, Howard F. Weeks, 342 Madison Ave., New York, N. Y. Managing Editor, None. Business Managers, None.

2. That the owner is: American Gas Association, Inc., 342 Madison Ave., New York, N. Y. President, H. C. Abell, 342 Madison Ave., New York, N. Y. Vice-President, A. B. Macbeth, 342 Madison Ave., New York, N. Y. Treasurer, H. M. Brundage, 342 Madison Ave., New York, N. Y. Secretary-Manager, Alexander Forward, 342 Madison Ave., New York, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is not required. (This information is required from daily publications only.)

HOWARD F. WEEKS

Sworn to and subscribed before me this 29th day of March, 1926.

STEPHANIE MATYAS
Notary Public

(My commission expires March 30, 1927.)

BANKS FORM BUREAU

THE RESEARCH BUREAU of Public Utilities, with offices at 11 East 36th Street, has been organized by the National Association of Mutual Savings Banks. The bureau will provide banks everywhere with information on public utility bonds, some of which will be legal investments for savings banks when a bill providing official permission passes at Albany. John Balch Blood, former member of the Interstate Commerce Commission, is director of the new bureau.

Associations Affiliated with A. G. A.

Canadian Gas Association
Date of Affiliation—Mar. 25, 1919.
Pres.—J. J. Humphreys, Montreal Light, Heat & Power Co., Montreal, Que.
Sec.-Tr.—G. W. Allen, 7 Astley Avenue, Toronto.
Conv., Montreal, Que., July 8 and 9, 1926.

Empire State Gas and Electric Association
Date of Affiliation—Nov. 21, 1919.
Pres.—E. C. Scobell, Rochester Gas & Electric Corp., Rochester, N. Y.
Chairman Gas Section—J. E. Cooper, Utica Gas & Electric Co., Utica, N. Y.
Sec.—C. H. B. Chapin, Grand Central Terminal, New York, N. Y.
Commercial Section Conv., Watertown, N. Y., June 24, 25, 1926.

Illinois Gas Association
Date of Affiliation—Mar. 19, 1919.
Pres.—W. A. Bertke, Illinois Power & Light Corp., East St. Louis, Ill.
Sec.-Tr.—R. V. Prather, 305 Illinois Mine Workers Bldg., Springfield, Ill.
Conv., 1927.

Indiana Gas Association
Date of Affiliation—April 24, 1919.
Pres.—H. J. Roach, Northern Indiana Gas and Electric Co., Crawfordsville, Ind.
Sec.-Tr.—E. J. Burke, Room 1314, Peoples Gas Bldg., Chicago, Ill.
Conv., West Baden, Ind., June 3 & 4, 1926.

Michigan Gas Association
Date of Affiliation—Sept. 18, 1919.
Pres.—B. G. Campbell, Consumers Power Co., Pontiac, Mich.
Sec.-Tr.—A. G. Schroeder, Grand Rapids Gas Light Co., Grand Rapids, Mich.
Conv., Mackinac Island, Mich., June 24, 25, 26, 1926.

Mid West Association
Date of Affiliation—May 21, 1919.
Pres.—Frank S. Edge, Peoples Light & Fuel Co., Grinnell, Iowa.
Sec.-Tr.—H. R. Sterrett, 551 Seventh St., Des Moines, Ia.
Conv., St. Paul, Minn., April, 1927.

Missouri Association of Public Utilities
Pres.—Wiley F. Corl, Community Power & Light Co., St. Louis, Mo.
Sec.-Tr.—F. D. Beardslee, 315 N. 12th St., St. Louis, Mo.
Conv., Springfield, Mo., May 3, 4 & 5, 1926.

New England Gas Association
Pres.—F. C. Freeman, Providence Gas Co., Providence, R. I.
Pres. Operating Div.—A. J. Smith, Concord Gas Co., Concord, N. H.
Sec.-Treas. Operating Div.—F. E. Drake, Lynn Gas & Electric Co., Lynn, Mass.
Pres. Sales Div.—J. J. Quinn, Citizens Gas Light Co., Quincy, Mass.
Sec.-Treas. Sales Div.—J. H. Sumner, 719 Massachusetts Ave., Cambridge, Mass.
Conv., 1927.

New Jersey Gas Association
Date of Affiliation—April 25, 1919.
Pres.—L. N. Yetter, Atlantic City Gas Co., Atlantic City, N. J.
Sec.-Tr.—Louis Stocker, Public Service Electric & Gas Co., Newark, N. J.
Conv., 1927.

Oklahoma Utilities Association
Date of Affiliation—September 16, 1925.
Pres.—J. A. Frates, Oklahoma Union Railway Co., Tulsa, Okla.
Mgr.—E. T. McKay, Oklahoma City, Okla.
Conv., 1927.

Pacific Coast Gas Association
Date of Affiliation—Sept. 18, 1919.
Pres.—F. J. Schafer, Southern California Gas Co., Los Angeles, Calif.
Exec. Sec.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.
Conv., Pasadena, Calif., Aug. 23 to 27, 1926.

Pennsylvania Gas Association
Date of Affiliation—April 10, 1919.
Pres.—Allyn C. Taylor, Consumers Gas Co., Reading, Pa.
Sec.-Tr.—Geo. L. Cullen, Harrisburg Gas Co., Harrisburg, Pa.
Conv., 1927.

Southern Gas Association
Date of Affiliation—May 20, 1919.
Pres.—A. E. Merchant, New Orleans Public Service, Inc., New Orleans, La.
Sec.-Tr.—J. P. Connolly, 141 Meeting St., Charleston, S. C.
Conv., Atlanta, Ga., April 20, 21, & 22, 1927.

Southwestern Public Service Association
Date of Affiliation—September 26, 1923.
Pres.—Paul E. Nicholls, Galveston Gas Company, Galveston, Texas.
Chairman Gas Section—H. E. Danner, Houston Gas & Fuel Company, Houston, Texas.
Sec.—E. N. Willis, 403 Slaughter Bldg., Dallas, Texas.
Conv., 1927.

Wisconsin Utilities Association
Date of Affiliation—March 25, 1919.
Pres.—G. H. Wilmarth, Northern States Power Co., Eau Claire, Wis.
Chairman Gas Section—S. B. Sherman, Wisconsin Gas & Electric Co., Racine, Wis.
Exec.-Sec.—J. N. Cadby, 445 Washington Bldg., Madison, Wis.
Gas Section Conv., Fond du Lac, Wisc., May 13 and 14, 1926.

Geographic Divisions

Eastern States Gas Conference
Date of Formation—April 11, 1923.
Pres.—S. P. Curtis, American Gas Co., Philadelphia, Pa.
Sec.-Tr.—J. C. Smith, Consumers Gas Co., Reading, Pa.
Conv., Bellevue-Stratford Hotel, Philadelphia, Pa., April 27 & 28, 1927.

Employment Bureau

SERVICES REQUIRED

LARGE COMPANY operating in Middle West desires to employ two Industrial Gas Engineers for Industrial Gas Sales and Survey Work. Will be employed on straight salary. State age, salary expected and past experience. Address A. G. A. Key No. 071.

ENGINEER—Large operating company desires the services of an engineer with experience in the application of gas and the selling of industrial gas appliances. State age, past experience and salary expected. Address A. G. A. Key No. 072.

WANTED by large gas company in middle west, salesman for industrial gas appliances. Address A. G. A. Key No. 073.

LARGE Middle Western Gas Company desires to employ an industrial gas engineer to work in industrial gas sales department. One with sales experience on large high pressure installations preferred. State age, salary expected and past experience. Address A. G. A. Key No. 075.

GAS COMPANY, operating within the suburban area of the Metropolitan District of New York City, wants services of well-trained, experienced Shop Foreman to handle its distribution and appliance work. State age, experience, salary expected. Give references, unless application is to be considered confidential. Address A. G. A. Key No. 076.

WANTED—Meter repair man of good habits and some mechanical ability to do the work in a meter shop for a company having 6,000 meters. A good job—good pay—full time and good environment. A fine chance for a young man wishing to locate permanently. Address A. G. A. Key No. 077.

RATE EXPERT—Large holding company requires the services of a man thoroughly experienced in gas and electric rates. Address A. G. A. Key No. 078.

WANTED—A fast growing Gas Syndicate operating a number of Gas Companies desires the services of an experienced gas appliance solicitor. Only trained and experienced men with good references need apply. A good opportunity for a live, wide-awake salesman. Address A. G. A. Key No. 079.

SALESMEN—Large Public Utility Company operating in Central New York and many other states, desires to employ several securities salesmen to sell company securities. Excellent opportunity. State salary, age, experience, married or single. Address A. G. A. Key No. 080.

SALESMAN—Young man to sell equipment to Gas Companies and other industries. Practical experience in gas distribution more important than actual selling experience. Salaried position with well established company. Address A. G. A. Key No. 081

SALES-DIRECTOR—Large Water Heater Company about to open extensive Water Heater Campaign for eastern Gas Company, requires a Sales-Director. Only a man of genuine selling ability and who can secure the best efforts of salesmen will fill the bill. Full particulars in first letter. Address A. G. A. Key No. 082.

SALESMEN-WATER HEATERS—Eastern Gas Company requires services of several Water Heater salesmen for campaign on Automatic Storage water heaters. Heaters will be sold on Thirty-Day Trial—no money down—one year to pay. Commissions far beyond the average will be paid. Give full particulars in first letter and how soon you will be available. Address A. G. A. Key No. 083.

GAS ENGINEER, technically educated in fundamentals of chemistry and mechanical engineering, with some knowledge of civil and electrical engineering and familiarity with business economics, having three to ten years, preferably in design and construction of coal and water gas plants and high and low pressure distribution system. Capable of handling operating and construction problems for system of several gas properties. Permanent position. Location, New York State. In replying, please give full details of education, experience, salary desired, availability and small photograph. Address A. G. A. Key No. 084.

INDUSTRIAL GAS SALES REPRESENTATIVE: Gas company in a Middle Atlantic State has an opening for a technical college graduate, with fundamental knowledge of application and combustion of various fuels, to sell gas for industrial uses. Must be capable of making plant surveys of heat applications. State age, education, experience and salary desired. Address A. G. A. Key No. 085.

SALESMEN: Medium-sized Public Utility Operating Company located near New York City has opening for one gas appliance salesman, and two securities salesmen to sell gas company securities direct to consumers. State salary, age, experience, and married or single. Address A. G. A. Key No. 086.

A COMPANY operating a number of gas and electric properties in the East desires to secure the services of several ladies for their Home Service Department. Applicants should have had experience in the gas and electric departments of a Public Utility in the following lines of work, gas and electric cooking, minor maintenance and adjustments of gas and electric appliances as well as being able to meet the public. The position will require some traveling and will pay a good salary with expenses, and offers an opportunity for advancement in a prominent and progressive organization. State age, experience, salary expected and enclose photo in first letter. Address A. G. A. Key No. 087.

SERVICES OFFERED

TECHNICAL MAN—(34) desires position as manager or superintendent of gas plant in city of 20,000 to 50,000 population; have had twelve years' experience in gas business of which last six have been as manager of gas properties; experience as superintendent of high and low pressure distribution; business and technical education; married; available immediately; references from present and former employers; prefer South. Address A. G. A. Key No. 202.

WANTED—Position as manager of relatively small gas company or as engineer of larger property. Coal or water gas. Young technically trained engineer (chemical and mechanical) with 10 years' unusually broad experience in all phases of industry, including manufacture, commercial and industrial, wishes to locate with property in need of men who can show the kind of results that mean increased net earnings. Address A. G. A. Key No. 204.

WANTED—Am open for position as appliance salesman with appliance manufacturer, experience covers over fifteen years in the sale of gas ranges, automatic water heater and heating appliances, or as manager of applance sales department with a gas operating company, experience includes executive and technical training. Married. A1 references. Address A. G. A. Key No. 205.

A COLLEGE GRADUATE, twenty-six years old, unmarried, three years' experience in operating plant with maximum daily send-out of 2600 M; fifteen months in charge of smaller plant and distribution, would like position with advancement. Address A. G. A. Key No. 206.

AN ENGINEER experienced in the development of large volume commercial and industrial gas business is open for position as Utility Manager or department head. Record and references on file with A. G. A. Address A. G. A. Key No. 207.

EXECUTIVE thoroughly experienced in coke oven and water gas manufacture, distribution of gas, sale of metallurgical and domestic coke, and engineer of wide experience with ability to deal with public officials and general public. Now open for engagement. Best of references. Forty-two years old and married. Address A. G. A. Key No. 209

WANTED—Position as Gas Engineer or Superintendent of property serving 30,000 or more meters. Fifteen years' experience in high and low pressure distribution, coal and water gas production. Address A. G. A. Key No. 211.

SUPERINTENDENT AND ENGINEER (38) desires new location with progressive company. Twenty years' experience in all departments from plant to commercial office. Will consider special department work with large company. Interested in industrial and house heating. Services available upon reasonable notice. Address A. G. A. Key No. 213.

Advisory Council

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AMERICAN GAS ASSOCIATION, INC.

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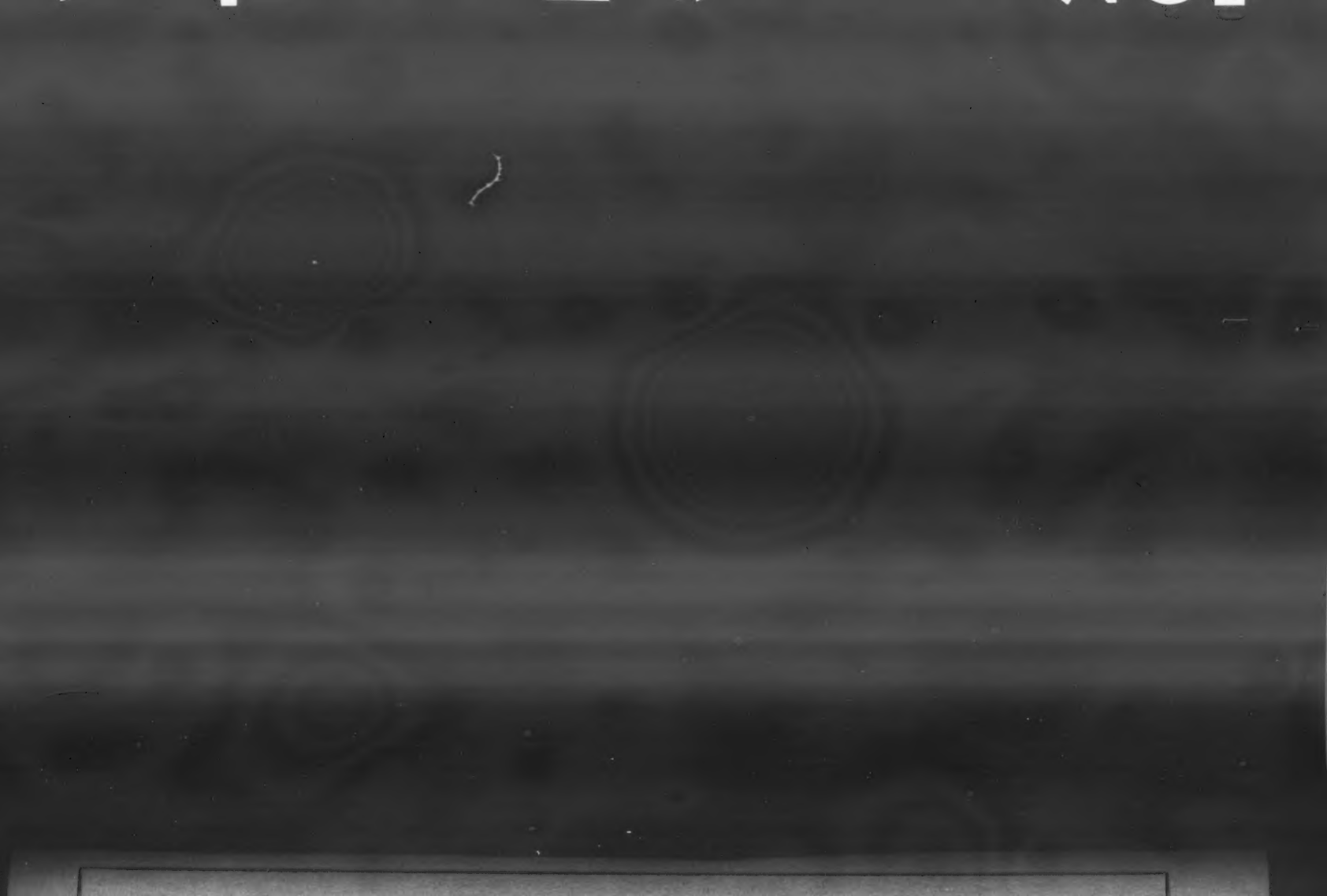
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